

## Research Project Aims at Cutting Overage Losses

**Analysis Excess Costs  
\$5 to \$6 Million  
Annually, NPFI Says**

WASHINGTON—"Losses" to the industry in fertilizer overages range from five to six million dollars annually, according to the National Plant Food Institute.

These losses, NPFI continued, result from fertilizer containing plant food in excess of that guaranteed by the manufacturer.

Turning specifically to the state scene, the North Carolina Department of Agriculture pointed out that the fertilizer industry in North Carolina gave farmers of that state \$1.3 million worth of fertilizer during fiscal year 1957-58. The figures revealed that farmers received an average of 91¢ worth more fertilizer per ton than they actually paid for.

NPFI, in attempting to improve methods of sampling and analysis, is sponsoring in cooperation with the American Association of Fertilizer Control Officials and the Association of Official Agricultural Chemists a major research project on chemical control problems.

Chemical analyses of more than 500 samples of fertilizer are being conducted by three cooperating state control laboratories.

One phase of the study of chemical analysis brought about the creation of an advisory committee on check fertilizer analyses. This group comprises representatives from official state control and fertilizer industry

(Turn to OVERAGE LOSSES, page 5)

## Lime Sales

WASHINGTON—Sales of agricultural lime during September totaled 18,009 short tons, including 7,958 short tons of quicklime and 10,051 short tons of hydrated lime, the Bureau of Mines has reported. Agricultural lime output in September a year earlier amounted to 22,213 short tons.

## Properly Fertilized Permanent Pasture Seen as Opportunity To Boost Missouri Farm Income

COLUMBIA, MO.—Production of 15 to 20 tons of grass-legume growth an acre is being achieved on permanent Missouri pastures, according to Marshall Christy, University of Missouri extension soils specialist.

However, it takes a high level of fertility to reach such a goal, Mr. Christy told the more than 200 Missouri fertilizer manufacturers and dealers attending the annual Soil Fertility and Plant Nutrition Short

## Central Farmers Buys Interest in National Potash

NEW YORK—Central Farmers Fertilizer Co. and National Potash Co. have signed an agreement which calls for the acquisition by Central Farmers of a stock interest in National and the production by National of potash materials for distribution by Central Farmers, according to a joint announcement made by Richard C. Wells, president of National, and Jos. J. Lanter, president of Central Farmers.

Delivery of potash to Central Farmers will not commence until July 1, 1959. Both National and the members of Central Farmers expect to complete their existing contracts for the sale and purchase of potash materials.

A National Potash Co. spokesman added, however, that the stock agreement does not constitute sale of the potash firm. No stock transfer will occur until late in the spring, the spokesman said, and the amount of

(Turn to NATIONAL POTASH, page 21)

## Expected Increase in Corn, Cotton Acreage Brightens Outlook for 1959 Sales

By JOHN CIPPERLY

Croplife Washington Correspondent

WASHINGTON—Examination of 1959 crop acreage probabilities reveals a solid basis for optimism over the market potential for fertilizer and pesticidal chemicals with emphasis on cotton and corn acreage increases over recent years.

Much material from official sources support this contention. The acreage reserve program of the soil bank, which absorbed substantial corn acreage, has ended. While some of this land might go into the conservation reserve program, the largest share of it probably will go back into crop production since the corn land acreage reserve phase was widely known as a temporary means to easy money. There will be a big boost in corn

acreage—and anticipated or potential higher yields in many sections of the Corn Belt. Can it be doubted that fertilizer and protective chemicals will not be a good "buy" with corn price support increased from 9 to 14¢ bu. for the largest part of the Corn Belt?

Early forecasts of an expansion of cotton acreage to as much as 18.2 million acres are now being revised downward, but nevertheless substantially larger cotton acreage is still indicated.

When the new cotton phase of the Farm Act was amended at the last session of Congress, permitting planting in excess of the basic acreage allotment of 16 plus million acres by 40% on which a lower level of support was available, U.S. Department of Agriculture experts estimated that 75% of the nation's cotton acreage would take this provision. It was thought that only 25% of the cotton acreage would be grown under the old higher level of support to those who comply with the 16 million plus acreage base. This was expected to effect an acreage of 18.2 million.

Now USDA experts are forecasting about an even division of cotton acreage between the two alternatives available to the cotton farmer. This would still provide a cotton acreage in excess of 17.5 million.

This should mean that the smaller cotton farmer who takes the higher level of support at 80% of parity

(Turn to CROP ACREAGE, page 5)

## Country's Most Famous Corn Acre Turns Out Yield of 226.99 Bu. for 4-H Youth

STATE COLLEGE, MISS.—The nation's most famous acre of corn on the Ratliff farm in Prentiss County, Mississippi, yielded 226.99 bu. this year.

It was grown by Lindon Ratliff, a 4-H Club member and the brother of 4-H'er Lamar Ratliff, whose 304.38 bu. on the same acre in 1955 is considered a world's record. In 1957 after taking over from his famous brother, Lindon grew 250.85 bu. on the single acre.

His 1958 yield was announced by W. T. Smith, county agent, and J. W. Archer, assistant county agent, both of Booneville. Led by Mr. Archer, and assisted by his parents, Mr. and Mrs. Paul Ratliff, Lindon followed

about the same methods that Lamar used.

Last fall and winter he applied 75 wagon loads of barnyard manure to the acre. About a week before planting on April 3, he placed 1,000 lb. of 14-14-14 and 700 lb. of nitrate of soda about 16 inches deep in the drill. He then applied 200 lb. of 14-14-14 about four inches deep at planting time.

His rows were 30 inches apart, with the corn spaced six to eight inches in the drill. The variety was Funks G-711. He cultivated twice.

When the corn was knee high, he sidedressed with 300 lb. of 14-14-14 and 300 lb. of nitrate of soda.

"We had 7.22 inches of rain during September, and the wind caused a lot of the corn to break and to fall. We feel that at least 25 bu. of corn were lost from rotting and germinating from September rains," Mr. Smith and Mr. Archer explained.

The Ratliff demonstrations, plus the successful 100 Bushel 4-H Corn Club organized in 1945, have greatly advanced corn production in Prentiss County and over a larger area. The average corn yield of Prentiss County has been more than doubled since 1945.

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## Montrose Begins Operation of DDT Plant in Mexico

NEW YORK—Montrose Mexicana, S.A. has started operation of a new DDT plant at Salamanca, state of Guanajuato, Mexico. The plant has a capacity of 15 million pounds of DDT per year, as against current Mexican requirements of 9 million pounds annually, the company said.

The cost of the plant was 60 million pesos or about \$5 million. Montrose Mexicana will distribute DDT to insecticide mixing plants throughout all of Mexico. The new plant will employ over a hundred workers, exclusive of technical and administrative personnel.

A majority interest in Montrose Mexicana, S.A. is held by Nacional Financiera together with a group of Mexican shareholders. The minority interest is held by Montrose International—jointly owned by Montrose

(Turn to MONTROSE, page 17)



## Crop Production Potentials Viewed at Minnesota Meeting

ST. PAUL, MINN. — More than 600 persons representing the fertilizer manufacturing industry, dealers, farm advisors and farmers braved sub-zero temperatures to attend the eighth annual Soils and Fertilizer Short Course at the University of Minnesota farm campus here Dec. 8. The event featured reports from University specialists, dinner at a nearby cafe and an evening program featuring a flannel board sales presentation and talks on fertilizer control laws and soil tests.

Economic implications of production potentials were discussed in a talk by Dr. E. H. Hartmans, University of Minnesota. Cutting down the unit cost of producing each bushel or ton from every acre brings benefit to the farmer in several ways, he declared. In effect it increases the size of the farm without the added investment of extra acres; it provides the opportunity for a more profitable livestock program and makes for a more satisfactory farm income level.

"Too low yield levels and the corresponding livestock program are often the cause of inadequate income," he pointed out. Many "sub-marginal" units could be converted into well-paying farm businesses by increasing the efficiency in crop and livestock organization and operation, he added. "Production potentials should be a great help in sizing up the income potential of an individual farm unit."

Dr. John M. MacGregor, professor of soils, discussed the carryover properties of nitrogen, reminding that the effect of nitrogen applied the year previously may substantially increase the yield of the second year's crop and more than pay for the original fertilizer application. However, there are a number of factors to be considered, and it may be possible that little or no appreciable benefit may occur in the second year. The four factors to consider in determining carryover include the following:

1. The original need for available nitrogen in the soil.
2. The amount of fertilizer nitrogen applied.
3. The crop grown in the second year — can it use the extra available residual nitrogen which remains in the soil?
4. Adequacy of soil moisture during the growing season.

Dr. MacGregor also warned that the role of weeds in crops is an important factor. Unless they are controlled, fertilization may result in the production of super-weeds which rob the valuable crop of nutrients.

Comparisons in the results obtained from application of solid, liquid and gaseous forms of fertilizer were made by R. C. Anderson of the University. He said that slightly better, but not significant, increases were noted from the liquid 12-36-18 mixture over the solid material of the same grade. On Webster soil types in Minnesota, the liquid fertilizer brought a corn yield of 95 bu. an acre as compared to 93 for the solid. The check plots on this soil brought 82 bu. an acre. Comparable figures were noted from results on Barnes and Clarion soil types, he added.

In connection with the application of fertilizers for better economic results, J. A. Lofgren, extension entomologist, reminded the group that the use of insecticides to prevent injury by soil insects is an important consideration. He said that either liquid sprays or granular formulations of insecticides may be used.

The use of insecticides mixed with fertilizers present some problems of application, he added. The mixtures may be broadcast if they are worked into the upper five or six inches of

the soil, not plowed down deeply. These mixes may be used with planter fertilizer attachments if the bands are placed above the seed, he said. In cases where the fertilizer attachment puts the material below and to one side of the seed, the insecticide should not be applied with fertilizer.

In an evening session following dinner, the group heard Dr. John Grava describe how soil test summaries can be helpful to the fertilizer and lime industries. Dr. Grava, head of the soil testing laboratories of the University, reminded that variations in plant nutrient requirements from area to area have some significance, and that soil test summaries are helpful as a source of information in establishing a sequence of priority in considering the lime and nutrient needs of an area. He showed a number of slides indicating soil nutrient needs on various soils found in Minnesota and informed his listeners of the manner in which these relate to fertilizer and lime use.

Dr. L. D. Hanson, extension specialist, reported on ways to bring soil test results to farmers, thus encouraging them to rely on such tests in determining their fertilizer needs. A number of proposed signboards were displayed to indicate that the field near the sign had been fertilized in accordance with soil tests. These, he said, will serve as a reminder to growers and keep them conscious of the importance of soil testing.

Ray Mittness and Coy Babb, sales representatives for Spencer Chemical Co., Kansas City, Mo., presented a flannel board discourse on how adequate fertilization brings greater economic gains to the farmer.

Minnesota laws covering fertilizers were outlined by R. E. Bergman, Feed and Fertilizer Control Office, Minnesota Department of Agriculture. Mr. Bergman outlined some of the problems of law enforcement, and told the group that added services by the state in furnishing more statistical data could well result in increased inspection fees. He also pointed up the problems involved in keeping close tally on fertilizer blends sold in the state.

The program was arranged by the University in cooperation with the Fertilizer Industry Committee of Minnesota. Presiding at different sessions were M. F. Kernkamp, C. A. VanDoren, and Dr. W. P. Martin, University of Minnesota, and M. W. Mawhinney, Smith-Douglass Co., Albert Lea, Minn., representative.



**MEETING PARTICIPANTS**—Shown above are some of the participants of the 19th annual convention of the National Aviation Trades Assn., held recently at the Pfister Hotel in Milwaukee. From left to right are: Nathan Boruszak, Motorola Communications and Electronics, Inc.; R. E. Monroe, National Aviation Trades Assn.; Fred E. Welch, Piper Development Center, Piper Aircraft Corp.; and Walter Kusiak, Pratt & Whitney Aircraft. In other meeting business, A. Biederman, A. Biederman, Inc., Glendale, Cal., was elected president; K. V. Brugh, Jr., Greensboro-High Point Air Service, Inc., Greensboro, N.C., was elected eastern vice president; James French, Farmers' Crop Dusters, Inc., Bakersfield, Cal., western vice president; and Ed B. Oliver, Volusia Aviation Service, Daytona Beach, Fla., was elected treasurer.

## Preliminary Findings On Wild Oat Control Revealed by Spencer

CINCINNATI—The development of a chemical which, after preliminary investigation, shows promise in the control of wild oats has been reported by Spencer Chemical Co.

Information on the development was given in a paper presented at the North Central Weed Conference in Cincinnati by Otto L. Hoffman, biological research group leader for Spencer. Mr. Hoffman said that laboratory and limited field tests of the chemical known as "S-847" have given favorable results in the control of wild oats, a weed which results in considerable dollar loss each year to growers of cereal grain in the northern U.S. and Canada.

"S-847" is chemically known as 4-chloro-2-butynyl N-(3-chlorophenyl) carbamate. According to the paper, its ability to control wild oats is due to the fact that it inhibits the growth of the weed plant. This growth inhibition, in some cases, will be sufficient to kill the wild oat plant or in others it will retard growth to the extent that the grain crop being grown will crowd it out.

According to the paper, "S-847" is a post-emergence herbicide—meaning that it is applied to the plant after it emerges from the soil. It has also been used as a pre-emergence herbicide but the paper indicated that the dosage needed for effective control with this method is many times greater than in post-emergence use.

Tests have shown that the age of the plant at application (as determined by leaf growth) has a definite bearing on the effectiveness of the new herbicide. Day length and temperature are also factors in the performance of "S-847," the paper stated.

The paper said that most crops grown in areas where wild oats are a problem are represented by varieties which will tolerate dosages of "S-847" which are toxic to wild oats. It indicated that wheat, barley, flax, peas and sugar beets have been treated successfully. Under optimum conditions, the paper said, the crop being treated may escape an inhibition from "S-847." However, the usual result is that the crop growth rate is inhibited slightly, with recovery being much more rapid than that of the wild oat plant.

Spencer has indicated that it considers "S-847" to be strictly in the experimental stage and that much more testing is needed before the chemical can be considered for commercial use. In the coming season, it will be available to state, provincial, and federal weed workers in the U.S. and Canada for further testing.



Dorvan C. Rolston

**NEW SALESMAN**—Dorvan C. Rolston has joined the sales department of Mississippi River Chemical Co., St. Louis, as sales representative, according to John L. Sanders, sales manager. Mr. Rolston will make his headquarters in El Paso, Ill. He is a native of Clinton, Iowa, and attended Iowa State College, before entering the air force. Before joining Mississippi River Chemical Co. he had been affiliated with a southern ammonia nitrate producer for three years.

## California Fertilizer Sales Up Slightly

SAN FRANCISCO—Despite a small decline in commercial fertilizer sales in California during the summer months, the 1958 total to date still represents a fractional gain over last year's figure.

Up to Sept. 30, a total of 884,606 tons of fertilizers had been sold, as compared with 879,963 for the same period in 1957. For the three month period from July 1 to Sept. 30 the corresponding figures were 205,029 tons this year and 216,479 tons last year.

There were two close contenders for the most popular fertilizer, and their respective trends during the third quarter and the nine months were in opposition to each other. Mixed fertilizers, dry, rose from 181,995 to 195,768 for the year to date to topmost position, but fell from 46,180 to 43,020 for the third quarter, and below ammonia solution 20-0-0. The latter chemical increasing from 40,019 to 44,585 for the quarter, dropped from 175,690 to 162,698 for the year to date.

No other fertilizer approached these figures in sales during the third quarter. Next in order of popularity was ammonium sulfate, which declined between the two periods from 24,119 to 19,835. Its nine month total, far heavier earlier in the year, increased from 129,745 to 137,279.

Succeeding in order were anhydrous ammonia, down from 27,296 to 18,120, and mixed fertilizers, liquid, up from 14,112 to 15,300; and superphosphate normal up from 10,239 to 11,813, all during the third quarter.

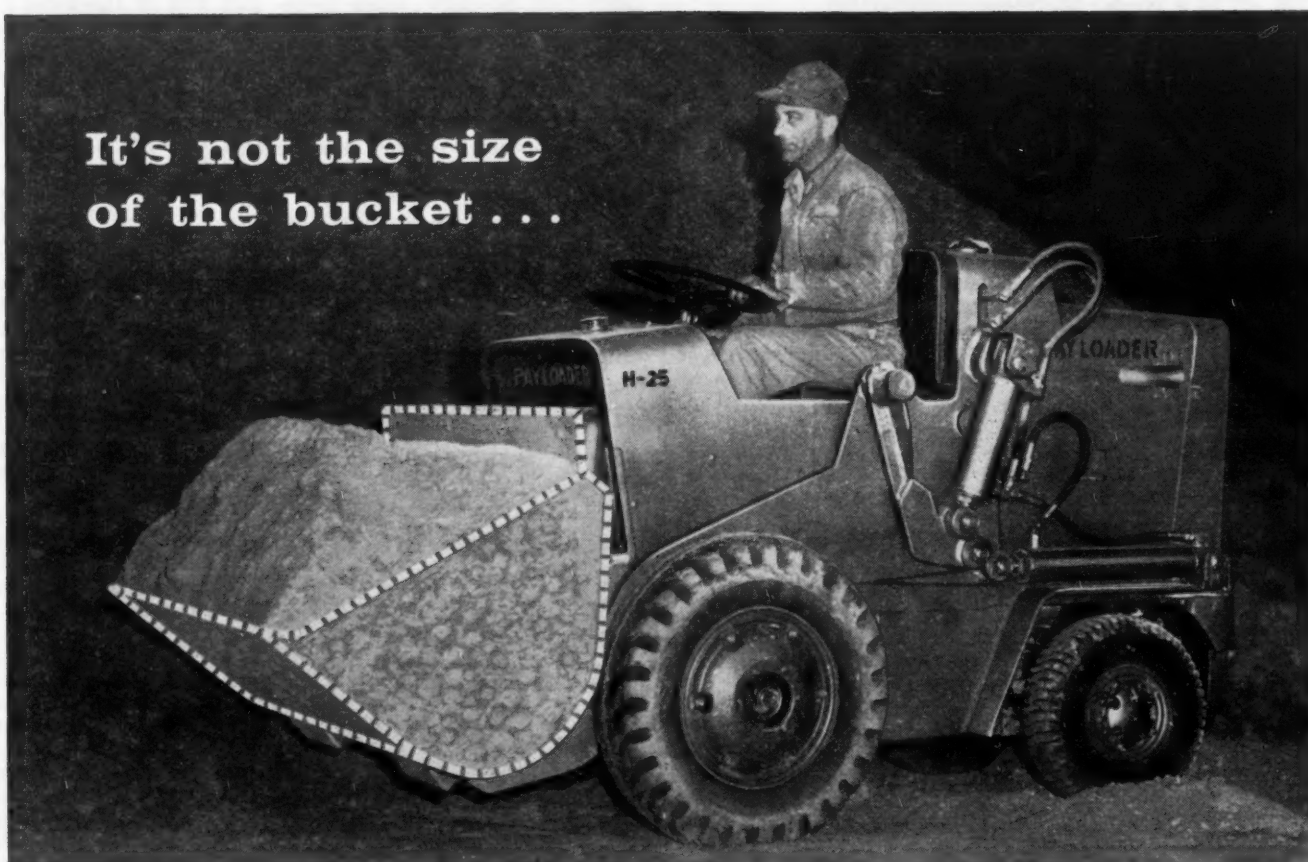
Examining the dry mixed fertilizer group, formula 10-10-10 remained in top position both summers, although dropping from 6,743 to 5,375; 10-10-5 was next succeeding, dropping from 4,553 to 3,999; formula 6-10-4 supplanted 17-7-0 in third place by rising from 1,435 to 1,862, while the latter dropped from 2,334 to 1,597 tons.

Agricultural minerals moved up both during the summer and for the three quarters of the year. The corresponding figures are 139,871 to 153,185 for the two quarters, and 498,492 to 529,213 for the year to date.

The dominant mineral, gypsum, recorded sales of 135,788 this summer as compared with 121,386 in 1957; and year's totals to date of 470,085 as compared with 436,258. Sewage sludge dropped from 7,479 to 6,958, and sulfur from 3,106 to 2,746.



It's not the size  
of the bucket . . .



## ...It's the weight of the load that measures tractor-shovel capacity!

**More pounds per load . . .** Buying a tractor-shovel on the basis of bucket volume, without knowing the carry capacity IN POUNDS of the unit, is putting the cart before the horse. You may be getting too much bucket, or not enough, for handling *your* materials most efficiently.

Buying on the basis of lifting capacity can be equally misleading since any tractor-shovel can lift much more than it can carry. However, it is the number of pounds which can be moved safely at normal speeds, in relation to the weight of the material to be handled, which determines the proper bucket size.

The carry capacity of the new model H-25 "PAY-LOADER" is 2,500 lbs. This is equal to 40% of the total machine weight and represents a new high in Capacity-to-Weight ratio for a unit of this class.

It is easy to select the proper bucket size which will enable you to safely move the largest load of *your* materials with an H-25 by referring to the table below.

FOR MATERIAL WEIGHING	BUCKET SIZE (S. A. E. RATED)	H-25 CARRY CAPACITY
up to 90# per cu. ft.	1 cu. yd.	2,500 lbs.
up to 105# per cu. ft.	7/8 cu. yd.	2,500 lbs.
up to 125# per cu. ft.	20 cu. ft.	2,500 lbs.
up to 155# per cu. ft.	16 cu. ft.	2,500 lbs.
up to 190# per cu. ft.	13 cu. ft.	2,500 lbs.

**More loads per shift . . .** The new H-25 "PAY-LOADER" not only handles a big load for its size and weight, but has the speed, maneuverability and ease of operation which permits it to move more loads per shift. Features which make this extra productivity possible are full-reversing, power-shift transmission with two speeds forward and two reverse; torque-converter drive; power-steering; power-transfer differential which automatically shifts more torque to the wheel with the best traction, and fast, powerful hydraulic bucket control.

Your "PAYLOADER" distributor will be glad to show you why you get more for your money in the model H-25 and other "PAYLOADER" units. Ask him about Hough Purchase and Lease Plans too. If you are interested in more information on the H-25, write to The Frank G. Hough Co., 970 Sunnyside Ave., Libertyville, Illinois.



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## Texas Cotton Conference to Hear 18 Speakers Discuss Profitable Production

HOUSTON, TEXAS—The 1958 Beltwide Cotton Production Conference will open here Dec. 17, with some 800-900 persons gathering to hear 18 speakers on "growing cotton for profit and markets."

Speakers will cover such topics as cotton insect and weed control, fertilization, improving and maintaining quality, getting cotton off to a good start, cotton production in Russia, and weather forecasting for agriculture.

The conference is being sponsored by the National Cotton Council in cooperation with farm organizations, U.S. Department of Agriculture, Cotton Belt land-grant colleges, agricultural chemicals industry, and other groups.

General chairman for the meeting at the Rice Hotel is J. D. Hays, Huntsville, Ala., vice president of the Alabama Farm Bureau Federation. Welcoming the group will be Burris Jackson, Hillsboro, Texas, the chairman of the State-Wide Cotton Committee of Texas.

The complete program for the conference is as follows:

**Wednesday morning, Dec. 17—**"Cotton Dynamics"—Mr. Hays; "Impact of the Boll Weevil on Cotton Production Costs"—Robert R. Coker, president, Coker's Pedigreed Seed Co., Hartsville, S.C.; "Weed Control in Efficient Cotton Production"—Dr. W. C. Shaw, head, Weed Control in Crops Section, USDA, Beltsville, Md.; "Closing the Plant Food Gap"—Dr. Moyle S. Williams, chief agricultural economist, National Plant Food Institute, Washington, D.C.

**Wednesday afternoon—**"Symposium: Strengthening Cotton's Quality-Leg"—leader, Dr. Earl E. Berkley, director, Fiber & Spinning Laboratory, Anderson, Clayton & Co., Houston; "What Is Quality?"—Dr. Burt Johnson, research consultant, National Cotton Council, Memphis; "Improving Quality Through Breeding"—Dr. T. R. Richmond, agronomist, USDA, Texas Agricultural Experiment Station, College Station; "Improving and Maintaining Quality in Growing, Harvesting, and Ginning"—George J. Harrison, agricultural consultant, Calcot, Ltd., Bakersfield, Cal.; "Quality Pay-Off in the Market"—Carl Cox, manager, Quality Control Department, W. D. Felder & Co., Dallas. "Getting Cotton Off to a Good Start"—Dr. John T. Presley, head, Cotton Disease Section, USDA, Beltsville, Md., and Dr. A. B. Wiles, plant pathologist, Mississippi State University, State College; "Taking Gossypol Out of Cotton"—Dr. Carl M. Lyman, head, Department of Biochemistry and Nutrition, Texas Agricultural Experiment Station, College Station.

**Thursday morning, Dec. 18—**"New Insect Control Recommendations"—Dr. M. E. Merkl, entomologist, USDA, Delta Branch Experiment Station, Stoneville, Miss.; "New Approaches to Controlling Insects"—Dr. T. B. Davich, entomologist, USDA, Texas Agricultural Experiment Station, College Station; "My Observations of Cotton Production in Russia"—Dr. B. M. Waddle, assistant chief, Cotton & Cordage Fibers Research Branch, USDA, Beltsville, Md.

"Weather Forecasting for Agriculture"—Paul H. Kutschenreuter, spe-

cial assistant to chief, Weather Bureau, U.S. Department of Commerce, Washington, D.C.; "How We Use Weather Information in Cotton Production"—Early C. Ewing, Jr., Delta and Pine Land Co., Scott, Miss.; "Our Cotton Production Practices and Results"—Byron W. Frierson, assistant director for agriculture, Texas Department of Correction, Sugarland.

## Tolerant Alfalfa Aphid Strain Seen by USDA

SALT LAKE CITY—A strain of the spotted alfalfa aphid, capable of surviving and reproducing on several non-dormant clones (cuttings) of alfalfa previously resistant to populations of the insect, has been observed and tested by U.S. Department of Agriculture entomologists.

This work, carried on by George R. Pesho and Frank V. Lieberman of USDA's Agricultural Research Service, and W. F. Lehman of the University of California was reported by Mr. Pesho at the closing session of the Entomological Society of America meeting here.

The new tolerant strain survived and reproduced on three alfalfa clones, all parents of the aphid-resistant variety Moapa. In tests at El Centro and Bakersfield, this aphid strain did not show differences in reaction to five other Moapa parent-clones or to any of the five parent-clones of Lahontan, another resistant alfalfa.

The scientists do not believe this aphid strain will do any great amount of damage to Moapa plantings unless or until it becomes dominant in the aphid population of an area.

Probably produced by mutation, the new strain was first found near El Centro. A clone of Nevada-1018 was seen to show all symptoms of susceptibility to the spotted alfalfa aphid. This clone had been present during repeated and prolonged attacks of the insect for three years without any ill effects.

Aphids from this resistant clone were tested many times in comparison with aphids from other sources to make sure that a new strain existed and to make certain that no other reason was responsible for the aphids' ability to live on these plants.

## Facility Expansion Keys Increased Tree Studies

RIVERSIDE, CAL. — Stepped-up studies of citrus tree nutrition will result from a recently completed expansion of facilities at the University of California, Riverside.

Forty-five hydroponic tanks have been installed for controlled experiments by members of the department of soils and plant nutrition.

Adding to the present 45 tanks in which trees grow without benefit of soil, the new units will greatly increase the scope of basic studies, according to Homer D. Chapman, chairman of the department.

Emphasis will be on the nutrient variables that affect fruit quality, production, foliar characteristics and other factors.

One-year-old navels and Valencias will be grown under uniform conditions for two years. After that the solutions of minerals and water bathing the tree roots will be varied and the results noted.

Working with Mr. Chapman on the project will be Robert B. Harding, Harriett Ann Joseph and David Rayner.

## VIRGINIA FERTILIZER REPORT

RICHMOND, VA.—Fertilizer sales in Virginia for the period Jan. 1, 1958 to Sept. 30, 1958 totaled 625,804 tons, which was significantly less than the 674,537 tons sold during the similar period last year.

## Big Increases in Iowa Corn Acreage Seen

DES MOINES—An estimate that Iowa corn acreage may increase as much as 16% next year as a result of the elimination of the corn acreage allotment program was made here recently by a program specialist in the Iowa Agricultural Stabilization and Conservation office.

Specialist Dewey Cornell said he wouldn't be surprised to see Iowa corn acreage rise to "close to 12 million acres" in 1959. Estimates indicate that Iowa farmers raised 10,270,000 acres of corn this year.

Mr. Cornell said that approximately 1 million acres of corn land which has been in the soil bank will be available for production. He said much of Iowa's good corn growing country is fall-plowed. "It's all black and that means only one thing—that that land will be planted to corn or soybeans next year."

Records show that Iowa has never had 12 million acres in corn. The highest corn acreage was 11,849,000 in 1932. Acreage in 1949 was 11,527,000 and in 1953 it was 11,180,000.

## South-Central District Office Moved by Calspray

DALLAS, TEXAS — California Spray-Chemical Corp. announced that the company had moved its south-central area district office from Shreveport, La., to Dallas. The firm's new address is now 4330 N. Central Expressway, Dallas 6. Mailing address will be P.O. Box 4948, Dallas 6, and the telephone numbers TA 7-5719 and TA 7-5710.

## TO SAN FRANCISCO POSTS

SAN FRANCISCO — Appointment of Alan Purchase as manager of petroleum and chemical sales, and W. G. Lowe as manager of industrial sales in the San Francisco district has been announced by Allis-Chalmers industries group.

## USDA Recommends Acreage Cut for Spring Potatoes

WASHINGTON — An acreage of 1959 spring crop potatoes 16% smaller than in 1958 has been recommended in acreage-marketing guides issued by the U.S. Department of Agriculture.

A reduction of 20% was recommended for Alabama, Arizona and Florida, 19% for California and 18% for North Carolina. These are the five principal spring crop producing states.

Guides for seven other states range from no change for early spring acreage in Texas, and no change for late spring acreage in South Carolina, Georgia, Arkansas and Louisiana, to a 5% reduction in Mississippi and a

## Entomologists Hear of New Methods to Halt Food Crop Diseases

SALT LAKE CITY—Promising new developments in methods of combating insect-borne diseases that affect food crops were reported in papers presented to the Entomological Society of America at its annual convention here.

One offers hope for effective control of the virus disease called curly top, which this year destroyed most of the tomato crops in Utah and Idaho and is a constant threat to other vegetable growers in the West.

W. E. Peay of the U.S. Department of Agriculture Research Service, Twin Falls, Idaho, said that in laboratory experiments he had been able to achieve 91% protection against the disease by spraying plants with a special solution.

The method, however, may still be far from practical application for two reasons. It has not been tried under field conditions, and no one knows whether this chemical, which enters the tissues of the plant, will leave a residue that might be harmful to persons eating the plant.

Studies at Dugway Proving Ground by scientists from the University of Utah Division of Biological Sciences have shown that possible routes for transmission of such diseases as plague, tularemia and anthrax can be mapped through identification of vegetation, rodents and insect parasites. This, they say, opens the possibility of selective attack against a threatened spread of such diseases.

Dr. Neely Turner, Connecticut state entomologist, New Haven, declared that with proper use of insecticides it is possible to kill vast numbers of harmful insects without "any disastrous effects on what people call the balance of nature."

## ADMINISTRATIVE HEAD

HENDERSON, NEV.—Thomas L. War, administrative service head of American Potash & Chemical Corp., here, has resigned to become head of the administrative offices of Pacific Engineering Co., also in Henderson.

12% cut in Oklahoma and the late spring acreage in Texas.

The guides for all states total 183,035 acres, as contrasted with the 217,700 acres planted in 1958. On the basis of yields in recent years, the 1959 acreage would produce about 28,700,000 cwt. of potatoes. The 1958 spring crop was 30,805,000 cwt.

USDA acreage-marketing guides designed to assist growers in planning production are issued seasonally prior to planting time. Action by growers is voluntary, but any departmental assistance to potato producers in any state or area will be conditioned upon strict compliance with the acreage guides.

A more detailed report will be included in the 1959 spring vegetable acreage-marketing guides booklet which will be available soon for distribution by state agricultural extension services.

1959 Acreage-Marketing Guides  
Potatoes—Early and Late Spring Crops

Season and state	1958 Planted acreage acres	1959 Acreage guide acres	Percentage change in 1959 planted acreage compared with 1958 %	1959 Market- ing guide 1,000 cwt.
Early Spring:				
Florida	31,500	25,200	Minus 20	3,670
Texas	300	300	No change	36
Total	31,800	25,500	Minus 19.8	3,706
Late Spring:				
North Carolina	25,000	20,500	Minus 18	2,173
South Carolina	7,500	7,500	No change	591
Georgia	2,000	2,000	No change	118
Alabama	30,000	24,000	Minus 20	2,029
Mississippi	9,000	8,545	Minus 5	393
Arkansas	8,500	8,500	No change	472
Louisiana	7,100	7,100	No change	338
Oklahoma	5,000	4,390	Minus 12	241
Texas	9,000	7,875	Minus 12	449
Arizona	9,800	7,840	Minus 20	1,999
California	73,000	59,285	Minus 19	14,105
Total	185,900	157,535	Minus 15.3	24,908
Total Spring	217,700	183,035	Minus 16.0	28,694

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## CROP ACREAGES

(Continued from page 1)

will still find adequate use of fertilizer profitable and the larger, more efficient cotton farm unit needs little education to understand that he must have plant food stimulants and protective chemicals to get maximum output to lower his costs.

Corn and cotton will be reflecting that part of the expected planted farm acreage increase for 1959 wherein the farm chemical products will find the greenest sales pastures.

Other crops will take up part of the acreage increase, but they probably will be supported at lower levels for 1959.

Grain sorghums, barley, oats and soybeans seem certain to be assigned lower levels of price support for 1959. In the case of soybeans there are some USDA officials who believe that soybean acreage may possibly decline in face of the more generally attractive level of support for corn and the cotton shift.

An intangible in the farm communities across the nation today appears to be a rising independence of the farmer to get away from allotment crops and use his land for those crops which are best suited for his soil and climate.

Within USDA, observers detect this shift in acreage patterns possibly demonstrated most effectively in potatoes where the more efficient potato farm land steadily ignores the recommended acreage guides of USDA. The poorer potato farming lands, or the fringe potato farms, represented possibly by inefficient farm units, give lip-service evidence of compliance with the acreage allotment guides. It is in those latter states wherein USDA detects compliance by indirection or default, since the potato farms in those areas have

either found a better crop substitute or through economic necessity have shifted into other types of production or have been absorbed by larger farmers.

Perhaps there may be some merit in the suggestion that the plant food producers may find reason to exploit through education farmers' transition into other crops whereby they can obtain a better return for their investment and labor.

Sugar beets seem to be verging on boom conditions, perhaps not this year ahead but nevertheless entering into a boom phase. It is understood that dramatic progress has been made in production, seed and harvesting techniques and that there is a growing sentiment within the industry to cut loose from government restraints so that the beet sugar in-

dustry may expand to capture part of what has been the market for off-shore sugar producers.

The cost-cutting advances of the domestic beet sugar industry are believed to put that group upon nearly equal terms with off-shore cane sugar from Cuba and clearly ahead of domestic cane sugar producers cost-wise. It may not be too early now for the chemical fertilizer industry to start an aggressive promotion of the beet sugar industry, particularly those sections which may be attracted to changes in farming because of diminishing wheat growing profit prospects.

In general it should be remarked that stable or rigid sales programs do not commend themselves to successful promotion of plant foods or pesticidal chemicals. The agricultural communities of the nation are in a state of flux and what may be today's market may suddenly have shifted into an entirely different commodity.

## Plastic Greenhouse At Kansas State

MANHATTAN—Kansas State College has a multi-colored greenhouse. Located north of the new home economics building, the greenhouse is covered with corrugated fiberglass plastic sheets in yellow, green, white, and clear colors.

Principal purpose is to determine the suitability of growing a wide range of plants under these plastics.

A number of entomological studies also are planned by C. C. Burkhardt, who will investigate what effect, if any, the varied light colors and intensities have on insects. He will study the life cycles, reproduction rates and general behavior of such insects as red spiders, aphids, mealy bugs and scales.

All plastic panels and associated materials needed for the experiments have been donated by the Butler Manufacturing Co. of Kansas City.

## OVERAGE LOSSES

(Continued from page 1)

control laboratories. The group will continue the work begun in 1922 by E. W. Magruder, F. S. Royster Guano Co., and which is known as the "Magruder Check Fertilizer Work." Mr. Magruder initiated the project by sending a fertilizer sample monthly to several chemists interested in fertilizer control work. Each chemist analyzed the check sample and sent the results to Mr. Magruder who in turn compiled them and circulated the results to the participating chemists.

The recently formed advisory committee on check fertilizer analyses is being sponsored jointly by NPFI and the AAFCO.

Representing the AAFCO will be state chemists F. W. Quackenbush, Indiana; Henry Davis, New Hampshire; Stacy B. Randle, New Jersey, and G. W. Gehrke, Missouri. Industry representatives who will participate in the session are Carol H. Perrin, Canada Packers, Ltd.; J. R. Archer, International Minerals & Chemical Corp.; S. F. Thornton, F. S. Royster Guano Co., and Vincent Sauchelli, NPFI.

E. Glocker, statistician, W. R. Grace & Co., has prepared a procedure, based on statistical principles, which will chart the course of the work. The monthly analyses, as sent in by the participating laboratories, will be analyzed statistically and then the complete list of analyses with their respective standards of deviation and other pertinent information will be circularized among the entire list of laboratories. A small charge will be made for this service to cover actual expenses.

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# Sulfur Ranks Third as Major Plant Nutrient for California Soils

By W. E. MARTIN

Extension Soils Specialist  
University of California, Berkeley\*

The frequency of sulfur deficiency in California soils ranks sulfur a close third—after nitrogen and phosphorus—as a major plant nutrient which must be supplied to maintain crop production.

Where sulfur is a primary deficiency it must be supplied before other fertilizer nutrients can be effective. Examples of primary sulfur deficiency are commonly found in alfalfa, range clovers, and seeded legumes like vetch. Such legumes are usually pale green, show weak growth, and respond quickly to addition of sulfur or any soluble sulfate.

In many locations sulfur is a secondary deficiency, exhibiting itself only after some other nutrient deficiency has been corrected. Examples of secondary sulfur deficiency often occur in sugar beets, cereals, or range grasses where nitrogen is also in low supply.

Materials supplying sulfur alone may have no effect in cases of secondary sulfur deficiency unless nitrogen is also applied. A straight nitrogen material may give a limited improvement with the plants a pale green. However, striking increases in plant growth may be obtained from sulfate additions made after nitrogen applications. Under those conditions a fertilizer supplying both nitrogen and sulfur—ammonium sulfate—will give much better growth than a straight nitrogen material such as ammonium nitrate or urea.

Similarly, a secondary sulfur deficiency exists in many phosphorus deficient soils. In some cases—in Siskiyou County—phosphorus, boron, and sulfur are concurrently deficient and all three must be added for satisfactory results.

In April, 1957 a statewide survey was initiated to record known sulfur responses, the crop involved, the soil series and the location of each observed deficiency. Responses to gypsum or sulfur in the improvement of alkali soils were not recorded, nor

were the cases where acid-forming properties of sulfur or ammonium sulfate improved growth by increasing soil acidity and thereby improving the supply of native phosphorus.

Sulfur deficiency was recorded in 34 of the 58 counties of the state. A large number of sulfur deficient locations occurred in the northern part of the state, particularly in the intermountain valleys of the coast range and at the northern end of the Sierra Nevada mountains. Also, a large number were found in the grassland and oakgrass woodland range areas along the eastern edge of the San Joaquin Valley, particularly in Fresno, Madera and Tulare counties. A similar concentration was observed on the western and northern edges of the Sacramento Valley where most of the deficiencies were primary on range legumes or on non-irrigated crops such as vetch and alfalfa.

A number of sulfur-deficient areas were located on the floor of the San Joaquin Valley in Stanislaus, Merced and San Joaquin counties. A much larger number of points—nearly all in irrigated crops—were found on the floor of the Sacramento Valley in Tehama, Butte and Shasta counties.

Tabulation of the sulfur responses by crops showed that of the 242 observed, 103—43%—were primary deficiencies and showed greatly increased growth of native or planted legumes. The next most frequent response was alfalfa—69 cases—closely followed by irrigated pasture at 42 locations, and vetch with 16 observed responses to added sulfur.

Range grasses, cereals and sugar beets also responded to added sulfur. However, because sulfur is a secondary deficiency in those crops, concurrent or primary deficiencies of nitrogen—or nitrogen and phosphorus—had to be corrected before benefit of added sulfur was observed.

Tests by various California workers have shown that 440 lb. of gypsum—calcium sulfate containing 18.6% sulfur—nearly doubled range and vetch forage yields the first year on soils deficient in sulfur. Similar results with non-irrigated alfalfa showed an average of over a ton extra alfalfa,

the first year from application of 400 lb. of gypsum. Increased yields usually persist two seasons with such primary deficiencies, though benefits the second year may be slight in regions of high rainfall.

**Sulfur deficiencies of legumes on irrigated soils are less common but do occur on light soils when irrigated with water of low sulfur content. Results on irrigated pasture and alfalfa indicate that yields may be increased spectacularly if acute deficiency exists.**

Benefits of sulfur-bearing fertilizers on non-legumes may be equally spectacular on soils very low in sulfur-supplying power. Recent tests show clearly that failure of certain, so-called straight-nitrogen, fertilizers to give grass stimulation may be attributed to lack of sulfur.

Tests in 1956 in Tulare County foothill range showed annual and perennial grasses very responsive to sulfur. Nitrogen alone about doubled yields but additions of sulfur to nitrogen nearly quadrupled the yields. Soft chess was particularly responsive. Very similar results were obtained in 1958 on annual grass range in a different area of Tulare County. In San Luis Obispo County there were even more spectacular results on grass range. Yields of grasses were unaffected by nitrogen alone, doubled by gypsum, but more than trebled when both nitrogen and sulfur were applied. Similar results have been observed in several other counties on acutely sulfur-deficient soils.

Nitrogen is nearly always deficient on annually cropped grainland and phosphorus deficiency is common but relatively few tests have been made on the sulfur nutrition of cereals. In one test in San Joaquin County, gypsum gave striking increases when applied after initial deficiencies of nitrogen and phosphorus had been corrected. Sulfur alone had no effect. Similar results have been observed in Monterey, Lake and Tehama counties.

**Sugar beets responded to sulfur at seven locations in Butte County. At one site yields were increased nearly three tons by using ammonium sulfate rather than ammonium nitrate. At most locations where sugar beets are grown in California irrigation waters contain adequate sulfur for crop needs.**

Sulfur deficiency occurs in a wide variety of California soils and is not restricted to soil from any single type of parent material.

In the sulfur deficiency survey, 60 different soil series were represented among the sulfur-deficient locations. In soils of granitic origin sulfur deficiency occurred in 54 cases; in soils derived primarily from basic igneous materials in 50 cases; and in soils formed or derived from sedimentary rocks or of mixed origin in 59 cases.

Sulfur responses on rangeland and non-irrigated crops were common on the upland granitic soils of the Vista and Holland series in the Sierra foothills of Madera, Fresno and Tulare counties. However, similar granitic soils in San Diego and Orange counties have shown no response to sulfur. Another group of rangeland soils often deficient are the upland and alluvial soils derived from basic igneous material. The responses on those soils are most common on stony-phase Aiken, Olympic, and the Lassen series. A considerable number of upland soils formed from sedimentary materials from the west edge of the Sacramento Valley were also deficient; including Altamont, Ayar, Contra Costa, and several others. Some of these same series and related ones derived from sedimentary rocks else-

where in the state rarely respond to sulfur. In fact, they often even contain free gypsum in the soil profile.

The sulfur content of irrigation water may give an indication of the likelihood of occurrence of sulfur deficiency on irrigated crops, as well as areas where there is no likelihood of response.

Waters derived primarily from snow melt in the high mountains are very low in sulfur. Most streams rising in the coast range carry considerable sulfur. In the Sacramento basin the sulfur content of the main river increases progressively from Redding down to Sacramento. Similar increases were observed in the San Joaquin River from Fresno north to the Delta.

**Waters from the upper Sacramento, Feather, American, Tuolumne, Merced and upper San Joaquin rivers are particularly low in sulfur content.**

In contrast, waters from central and southern California coastal streams contain large amounts of sulfur. The waters of the Santa Clara and Colorado rivers contain 200-260 lb. sulfur an acre foot.

In the San Joaquin Valley sulfur deficiency is common in alfalfa grown on light sands, sandy loams of the Dinuba, Delhi and Hanford series where watered from the Tuolumne and Merced rivers which have values of 1.4 and 2.9 lb. sulfur an acre foot. Those same soil series elsewhere rarely show sulfur deficiency if irrigated with pump water or stream water of high sulfur content. One pound of sulfur an acre foot of water is equivalent to 1.1 ppm.—parts per million—sulfate.

A previous study of irrigated alfalfa in Merced County showed a yield of about 6,000 lb. and sulfur removal of 10 lb. an acre when deficient. Yields were increased to 12,000-14,000 lb. and sulfur removal to 30-45 lb. an acre when the deficiency was corrected. From these figures the sulfur requirement of alfalfa would appear to be about 5-6 lb. a ton of alfalfa harvested.

**In the Sacramento Valley sulfur response of irrigated crops is quite common on light textured soils of Conejo, Vina and Columbia series where watered by stream flow from the Feather River with sulfur value of 2 lb. an acre foot or from the upper Sacramento River with a value of 4.4 lb. sulfur an acre foot.**

In the mountain area sulfur deficiency is common near Susanville where the Susan River has a sulfur value of 1.2 lb. and along Hat and Burney creeks where the values of 4.4 and .08 lb. were reported.

Streams from the coast range in northern and central California contain much more sulfur and sulfur deficiency of irrigated crops is rare. In southern California, where surface waters contain 30 to several hundred pounds sulfur an acre foot, sulfur deficiency is unknown.

Ground water values usually run somewhat higher than surface waters in the same areas and are usually in excess of 10 ppm., or 9 lb. sulfur an acre foot. In some areas of northern and central California where surface waters are low in sulfur, ground water is correspondingly low and crops irrigated with pumped water often show sulfur deficiency.

## Wrong Identification

A story in the Nov. 17 issue of Croplife referred to E. L. Knickrehm of California Ammonia Co. as "vice president for production." This was an error. Julian Rogers holds that office. Mr. Knickrehm is superintendent of the new ammonia plant.

## INCORPORATES STORE

HEALDSBURG, CAL.—Arthur K. Butts has incorporated his retail farm chemical and supply operation, Butts' Nursery, and is continuing to sell fertilizer and pesticides at 14979 Grove St., Healdsburg.

Some Sulfur Responses of Legumes in California\*

Crop	County	Year	Yields as lb. dry wt./A.		Sulfur source
			No sulfur	Plus sulfur	
I. Range					
A. Burr and other native clovers	Ventura	1946	3435	4670	440 lb./ac. Gypsum
	Madera	1946	2550	5700	400 lb./ac. Gypsum
	Colusa	1946	1025	3300	440 lb./ac. Gypsum
	Sonoma	1946	3675	6140	440 lb./ac. Gypsum
	Monterey	1948	1770	2700	440 lb./ac. Gypsum
	Stanislaus	1954	1970	3080	500 lb./ac. Gypsum
B. Rose clover					
II. Cultivated legumes					
A. Vetch hay	Lake	1948	2173	4566	200 lb./ac. Gypsum
	Lake	1954	2200	4140	400 lb./ac. Gypsum
	Lake	1947	1879	4809	400 lb./ac. Gypsum
B. Dry land alfalfa (1st cutting)	Modoc	1947	3180	4220	400 lb./ac. Gypsum
	Lassen	1947	1530	4830	400 lb./ac. Gypsum
	Lassen	1952	2740	3780	400 lb./ac. Gypsum
	Lassen	1953	2100	5100	400 lb./ac. Gypsum
	Modoc	1954	3312	4398	400 lb./ac. Gypsum
C. Irrigated alfalfa	Merced	1919-22	8200	20600	Soil sulfur
	Stanislaus	1948	10180	12570	1000 lb./ac. Gypsum
	Stanislaus	1955	9800	13800	400 lb./ac. Gypsum
	Merced	1952	6180	14400	400 lb./ac. Gypsum
D. Irrigated pasture	Lake	1955	1634	5939	400 lb./ac. Gypsum

\*Compiled from several sources.

Reported by Conrad, Miller & Hall; Conrad & Garthwaite; Conrad & Mellis; Conrad & Torpen; Conrad & Albaugh; Arkley, Helphenstine & Williams; Stice; Lusk; Hays; Lamborne; Rimbey; Allison; Osterlig; Stevenson; Rendig, Weir & Inouye.

Some Sulfur Responses of Non-Legumes in California\*

Crop	County	Year	Yields as lb. dry wt./A.**				Fertilizer source lb./A.
			Ck.	S	N	NS	
Range grasses	Tulare	1954	1144	...	2200	4337	N 313 Am. Nitrate
Soft chess			384	...	535	1390	NS 500 Am. Sulfate
Range grasses	Tulare	1958	554	405	1274	2280	\$ 370 Gypsum
							N 180 Am. Nitrate
							NS 280 Am. Sulfate
Range grasses	San Luis Obispo	1958	1400	3101	1428	5045	\$ 400 Gypsum
							N 200 Urea
							NS N + S above
Cereals—oats for grain	San Joaquin	1948	674	917	1195	1565	\$ 500 Gypsum
							P 200 Treble Super.
							N 150 Am. Nitrate
Sugar beets	Butte	1953	19.0	...	21.8 T/ac.	...	N Am. Nitrate
							NS Am. Sulfate

\*Compiled from several sources.

Reported by Walker & Evans; Miller; Helphenstine; Baskett; Morse & Hills.

\*\*Ck. = check. S = Sulfur. N = nitrogen. P = phosphorus.



## NPFI Committee Takes Steps to Start 11 Point Program

CHICAGO—The Midwest Research and Education Committee of the National Plant Food Institute took steps to get an 11-point 1959 program under way, at a meeting recently at the Builders' Club here. R. P. Thomas, International Minerals & Chemical Corp., chairman of the committee, presided.

Members of the committee took the following action:

1—Approved setting up a county-wide soil fertilization program tied to soil testing in Ionia County, Mich. This program will be under the direct supervision of John Guttay, NPFI field representative for Michigan, Ohio, Indiana and Kentucky.

2—Okayed program plans for the annual joint meeting of Midwestern Agronomists and Fertilizer Industry Representatives at the Edgewater Beach Hotel, Chicago, Feb. 12-13.

3—Approved plans for a meeting of Research and Education Committee members with college representatives at the time of the joint meeting.

4—Authorized setting up a work group to determine the extent of forest fertilization research in the Midwest and to consider the need for a regional conference on forest fertilization.

5—Gave official approval for a demonstration research project in one county in Ohio to get under way in the 1959 season. This project would measure the impact of well handled demonstrations on the merchandising of fertilizer.

6—Voted approval for a joint fertilizer demonstration program supported by the fertilizer industry and state and county extension personnel in as many counties in Illinois as possible in 1959.

7—Authorized setting up a work group to cooperate with a pasture fertilization program sponsored by the University of Minnesota.

8—Instructed the Midwest regional staff to consider the possibility of measuring the impact of dealers' conferences in Missouri.

9—Approved a survey of the experience of county extension personnel, vocational agriculture teachers and fertilizer industry men with the Crop Production Potential wall charts and check lists in Illinois and Wisconsin.

10—Reviewed a report on roadside fertilization and authorized the establishment of a work group to encourage demonstrations in Midwest states on the use of fertilizer in establishing and maintaining sod on roadsides.

11—Authorized a study of Soil Conservation Service recommended rotations with the idea of encouraging the adoption of continuous corn as a recommended rotation on adapted fields.

L. L. Schrader, Standard Oil Co., described the company's new "Consolidated Laboratories" and invited Research and Education Committee members to visit the laboratories as a group or as individuals.

### Two Fertilizer Operations Establish Safety Records

NEW YORK—The Spartanburg, S.C., plant of the American Agricultural Chemical Co., manufacturers of Agrico fertilizers, completed its sixth year without a lost time accident, on Dec. 2, according to George H. Mueller, A.A.C. director of safety.

On Sept. 30, the Henderson, N.C., plant completed five years of operation without a lost time injury.

In making the announcement, Mr. Mueller complimented the employees at the two plants for their cooperative efforts to eliminate dangerous practices which can be extremely costly both to themselves and to production schedules.

## Trade Winds From California

BAKERSFIELD, CAL.—A new distributor firm selling agricultural fertilizers and insecticides has been formed in Bakersfield under the name of Growers' Fertilizer Service, Inc. Principals of the new firm are I. W. Anderson and Alfred Schroeder of Bakersfield, and Hubert Holterman of Wasco.

PARLIER, CAL.—Frank C. Pavia has formed the Pavia Farm and Home Garden Supply Store to retail farm chemicals and other agricultural products.

FRESNO, CAL.—The Westside Fertilizer Co. has been incorporated in Fresno to distribute farm chemi-

cals. Directors of the firm are Howard B. Thomas, Charles E. Small, and Roger Fipps.

WATSONVILLE, CAL.—Walter W. Love and W. C. Denny are the officers of the newly incorporated fertilizer distribution firm known as Green-Gro Fertilizer and Supply Co., at 1183 Buena Vista Dr., Watsonville.

MOUNTAIN VIEW, CAL.—The Takamum Nursery has been formed at 2460 El Camino Real, Mountain View, to retail farm chemicals and supplies to home gardeners.

ESPARTO, CAL.—The B and R Co. is the name of a new firm selling fertilizer and related products in Esparto. Owners are Bert Rowland and Anthony Barber of Woodland, Cal., and Thomas Spiva of Esparto.

REDWOOD CITY, CAL.—The Redwood Garden Products Store, retailer

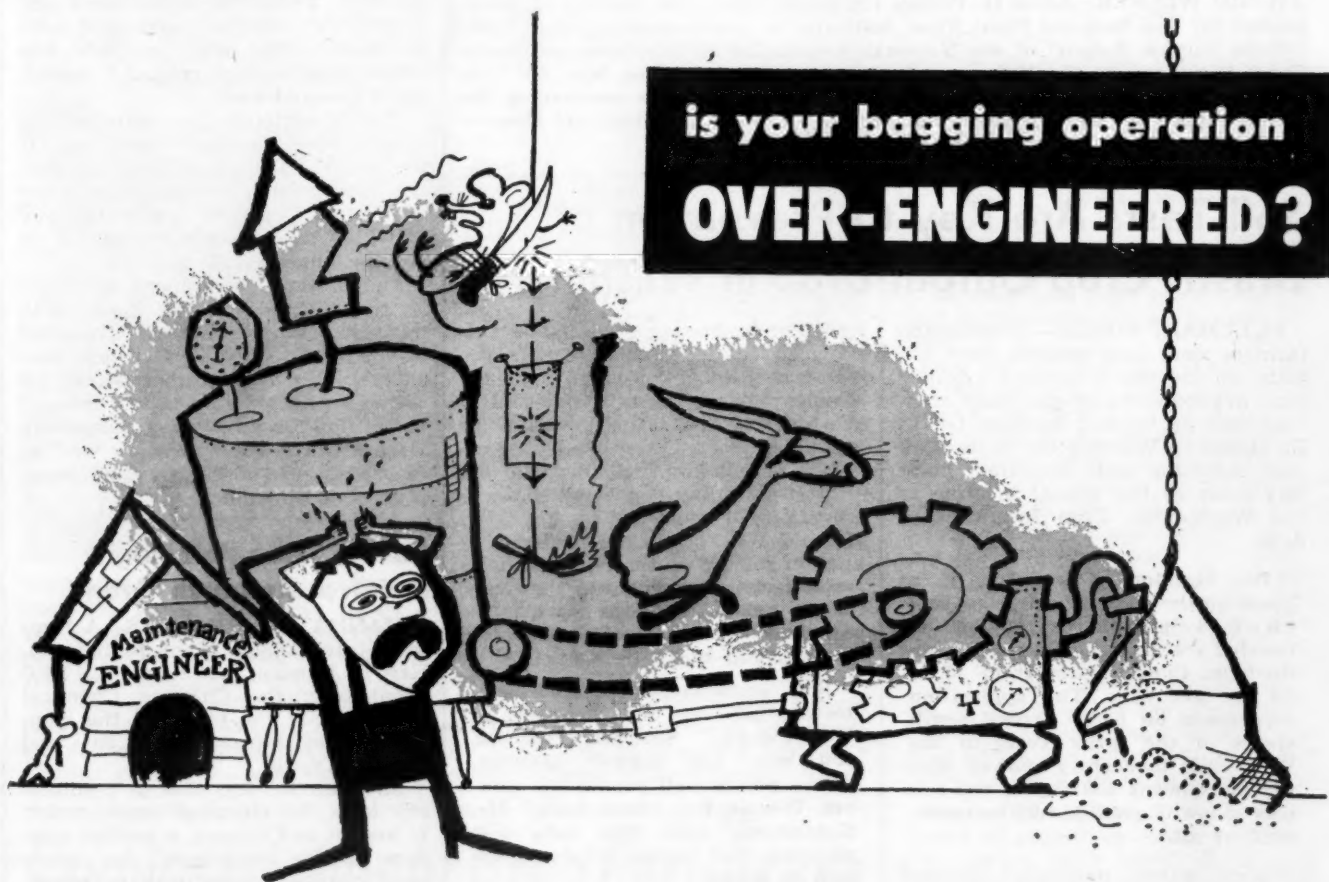
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of chemicals and other agricultural products, has been sold by Leslie L. and Veda F. Lively to J. I. Ridge.

WILLOWS, CAL.—The B and R Co., Willows, retailer of fertilizer and farm products, has been incorporated under the name of B and R Co., Inc., at 1231 Alice St. Principals in the firm are Bert Rowland, Anthony Barber and Alber Soeth.

STRATHMORE, CAL.—Fred R. Adams and James R. Valpey have put their names as well as their resources together to form the Adavulp Nursery in Strathmore, to retail farm and garden supplies, including fertilizers and chemicals.

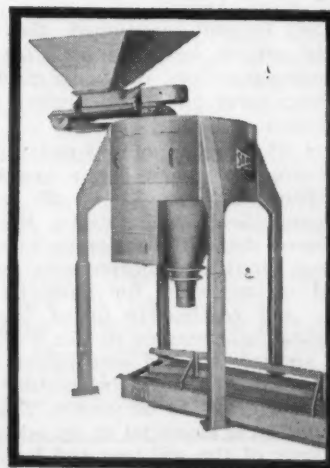
SANTA ROSA, CAL.—The Ranchway Garden and Poultry Supply Store was opened at 959 W. College Ave., Santa Rosa, this fall by Thomas E. and Eva E. Ramondo. The store retails farm chemicals for home consumption and other supplies.



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**AWARD WINNER**—Louis H. Wilson (left), secretary and director of information for the National Plant Food Institute, is shown receiving the "Meritorious Service Award" of the National Association of Television and Radio Farm Directors, at the 15th annual convention in Chicago on Nov. 30. (See story in Croplife, Dec. 8.) The highest honor accorded by the association, the presentation was made by Robert C. Miller, NATFRD president and director of the farm department, station WLW, Cincinnati.

## Soil Tests Are Key to Prevention of Drastic Crop Output Drop in Washington

PULLMAN, WASH.—Washington farmers were told recently that soil tests are one way to prevent a drastic drop in production as continued cropping uses up natural fertility. Dr. C. B. Harston, Washington State College extension soils specialist, made this point at the annual meeting of the Washington Crop Improvement Assn.

Dr. Harston, a member of a panel on the value of soil tests, said that a phosphorus application boosted wheat yields on a southern Spokane County farm from 45 to 70 bu. per acre. The application was made on badly eroded south slopes of the farm. Tests in the WSC soils laboratory showed that the phosphorus content of the soil was so low it could hardly be measured at all.

Other panel members included Harley D. Jacquot, Hooper, agronomist, McGregor Land and Livestock Co., moderator; Dr. A. R. Halvorson, WSC extension specialist in soils testing, Pullman; and Felix M. Entenmann, WSC Whitman County extension agent, Colfax.

Dr. Jacquot cautioned that soil tests cannot be a cure-all for bad farming practices, but are a good tool to help carry out a satisfactory management program.

Dr. Halvorson pointed out that on the average every dollar spent for fertilizer returns \$2 to \$5 in increased yields and profits. He also stressed that different crops have different fertilizer requirements just as feed rations vary for chickens and pigs and cattle. He urged farmers sending soil samples to the WSC lab for analysis to also send information on the farm's cropping history and types of crops to be grown. This information is essential to an adequate analysis of the soil test and fertilizer needs, he explained.

Dr. Halvorson said soils in eastern Washington are generally higher in native fertility than western Washington soils because of lower rainfall.

The WSC soils scientist said certain problem areas of the state require special soil tests. Soil samples from orchard areas of central Washington are analyzed for arsenic as arsenic spray residues may be a problem, he said. In irrigated areas of the Basin, certain waters contain harmful amounts of salt and will damage soils

irrigated by them. A special test is provided to determine whether the water is suitable for irrigating land. Problem soils of eastern and central Washington are tested for salinity and alkali.

Mr. Entenmann explained the operation of farmer-supported soil conservation district soil-testing labs. He said WSC offers technical assistance in setting up the labs and helps train technicians to run the tests. County extension agents serve as the go-between for the soil conservation districts and WSC, he said.

Soil conservation district soil-testing labs are now operating in Whitman, Spokane, Lincoln, Adams, and Garfield counties. "They pretty well pepper the eastern Washington wheat area," Mr. Entenmann said. The labs test moisture and nitrate levels of the soil, he added.

Dr. Harston, Dr. Halvorson and Mr. Entenmann all stressed the importance of field tests to pinpoint specific response of various types of soil to fertilizer treatment. Dr. Harston pointed out that such test plots on farmers' fields have been conducted by WSC for the past 8 to 10 years.

Dr. Jacquot said the McGregor company has had its own private soil testing laboratory in operation since 1950. The lab is kept in operation all year except during the winter months, he said.

### Soil Sampling on Increase

BLACKSBURG, VA.—More and more Virginia farmers are taking advantage of the soil testing service of Virginia Polytechnic Institute's agronomy department, according to W. W. Lewis, agronomist at VPI. Mr. Lewis says that during the period July 1, 1957 to Dec. 1, 1957, over 10,400 samples were tested, as compared to over 17,000 during the corresponding period this year.

### SALES IN SOUTH CAROLINA

CLEMSON, S.C.—B. D. Cloaninger, of the Clemson Agricultural College, reports that 23,140 tons of fertilizer were sold in the state during November. This marks an increase of 3,234 tons over November, 1957. For the fiscal year to date (July through November) 115,870 tons have been sold or 19,266 tons more than during the similar period last year. This is an increase of 19.9%.

## American Cyanamid Announces Finding Apple Scab Control

NEW YORK—A new fungicide for apple scab control has been developed by American Cyanamid Co. It will be introduced to the trade under the brand name Cyprex (dodecylguanidine acetate) and will be available to growers in the major fruit areas early in 1959.

In announcing the new product, Dr. J. F. Yost, director of plant industry development for the agricultural division, said the fungicide had "excellent eradication and protection properties and has ability to penetrate apple leaves."

Cyprex was formerly known under the experimental number E. F. 5223 and underwent three years of field testing by plant pathologists in federal and state experiment stations.

Apple scab is a big problem to fruit growers, and it is against this disease that Cyprex has been most widely tested. Under the severe scab condition (high moisture and mild temperatures) the new fungicide has given "near-perfect control," American Cyanamid said.

Cyprex combines two scab-fighting actions, the company went on. It protects the fruit and foliage against the disease and, when applied after an infection period, eradicates any scab that may become established on new or unprotected surfaces.

The present government clearance is for the control of apple scab through first cover sprays. Cyanamid completed two years of chronic toxicity studies in December which, together with field studies, will be used to petition for a tolerance permitting later apple cover sprays as well as full season use on cherries and pears, the company said.

### Kansas State Pathologist Receives Research Grant

MANHATTAN, KANSAS—A Kansas State College plant pathologist, Earl D. Hansing, has received a \$500 grant from the Chipman Chemical Co. to study the effect of the company's fungicide on wheat, oats and sorghum seeds.

Mr. Hansing says that in preliminary tests the chemical—commercially known as Chipcote, a methyl mercury nitrile compound—has given good results in control of oat smut. Mr. Hansing also plans to test the fungicide for control of wheat smut and sorghum smut.

He also will check for control of seed rot in the three grains.

The fungicide is aimed at eliminating the fungi on the seed and the fungi in the soil where the seed is planted. The chemical is put on the seed before it is planted.

Also included in the study will be the amount of fungicide which should be put on the seeds. Preliminary tests point toward an application rate of about one ounce per bushel, he says.

### New Board Member Elected At Michigan Chemical Corp.

SAINT LOUIS, MICH.—The board of directors of Michigan Chemical Corp., declared an annual dividend of 25¢ a share on its outstanding common stock, payable Dec. 30, 1958, to stockholders of record at the close of business Dec. 12, 1958.

Also at the meeting, Fred A. DeMaestri, vice president of operations of the company since December, 1954, was elected to the board to fill an existing vacancy.

In commenting on developments at Michigan Chemical, Theodore Marvin, president, reported on the satisfactory construction progress of the company's new seawater magnesite plant at Port St. Joe, Fla., and on technical and scientific advancements in pharmaceutical intermediates, bromine and bromides, and on rare earth compounds and metals.



Thomas B. Potter

**ADMINISTRATIVE ASSISTANT**—Thomas B. Potter has been named administrative assistant to W. Ward Jackson, vice president, sales, Commercial Solvents Corp. Mr. Potter returns to CSC after a two year assignment as secretary and assistant treasurer of Northwest Nitro-Chemicals, Ltd., a CSC Canadian affiliate organized in 1956. Mr. Potter has been associated with Commercial Solvents since 1925, when he joined the company at its Terre Haute, Ind., plant. Since that time, he has held a number of posts of increasing responsibility.

### Method of Detecting Crop Diseases from Air Photos Is Developed

WASHINGTON—The National Research Council has developed a method of diagnosing certain cereal crop diseases from aerial photos.

The council says that aerial photos made from 10,000 ft. can detect infected areas that are missed by observers on the ground only 10 ft. away.

Infrared, color and panchromatic films are used.

According to the council, the same methods could be used from planes to distinguish soil and mineral types, plant species, water depths and to detect timber stands vulnerable to epidemic-size disease or insect attacks.

### Bert Brayton Wins Iowa Merit Award

AMES, IOWA—Bert Brayton, president and entomologist for Brayton Chemicals, Inc., Burlington, Iowa, received the certificate of merit from the Iowa State Horticultural Society because of the "service he has rendered fruit growers, agricultural organizations and other associated groups."

Mr. Brayton was associate entomologist at the University of Missouri for 12 years before establishing Brayton Chemicals in Burlington.

The company formulates and distributes insecticides. It also distributes weed and brush killers, soil sterilants, fumigants and rodenticides.

### J. E. Benson Named to New Post with Swift

CHICAGO—J. E. Benson has been appointed manager of Swift & Co.'s agricultural chemical division at Albany, Ga., succeeding A. N. D'Aubert who died suddenly in October.

Mr. Benson is a native of Georgia and joined Swift at Atlanta in 1946 as a field representative. After serving as credit manager at Norfolk, Va., and Albany, he was named assistant manager in 1953.



## Economics Student, Gardener Team To Make Successful Supply Center

By GODFREY LEHMAN  
Croplife Special Writer

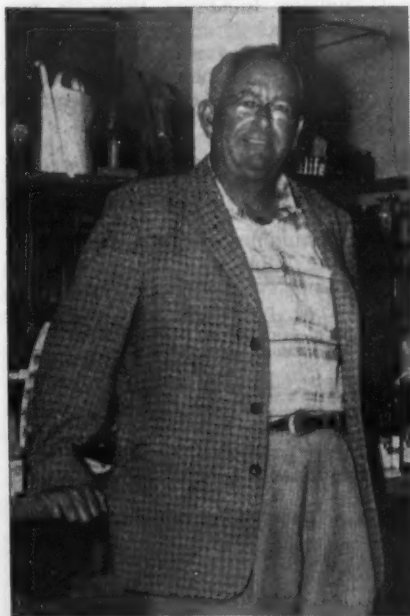
A Stanford University economics major and a Dutch born gardener teamed up 24 years ago to open a small garden and supply store on El Camino Real in Millbrae, Cal. Today, Peters and Wilson Nursery and Garden Center is one of the largest suppliers of its type on the San Francisco peninsula and is located on a four and one-half acre site. →

Owned by James H. Wilson and Minno O. Peters, the new center is situated at E. Millbrae and Rollins Road just off the Bayshore Highway. It opened in 1955. The supply store with its arcade and hothouses covers about 12,000 sq. ft. of floor space.

Perhaps the outstanding feature of the store's construction is the arcade which triples the center's covered area. On the north, it covers a section where multi-colored flower pots and wooden boxes are displayed and joins with the hothouse at the end. On the south, it extends out over a storage and display area where various flowers in pots and flats are shown. The arcade also provides a covered part in the rear of the store where various tools and supplies are kept and gives a 16 ft. wide protected section in the front of the store allowing plants and fertilizers to be arranged in a prominent area but out of the store itself.

Seven full time workers, in addition to the owners and one part time man, are employed at the center. Weekly advertising of the store's products is carried out in the San Mateo Times, Millbrae Sun and Burlingame Advance-Star in addition to monthly ads in Sunset magazine. The newspaper ads consist of a one column by quarter page article headed, "Jim Wilson's Word to the Wise Gardener," where gardening tips and news about products handled by the store are passed along. "We get action on these columns each weekend," stated Mr. Wilson when asked about

(Turn to SUPPLY CENTER, page 14)



**JAMES WILSON**, co-owner of the Peters and Wilson Garden Center, Millbrae, Cal., is shown here in the Center's store area.



**VARIETY** is the keynote at Peters and Wilson Garden Center in Millbrae, Cal. The upper left photo shows one section of the firm's huge arcade where many kinds of fertilizer are stored. The upper right photo shows the company's storage shed, housing the more bulky items such as large bags of fertilizer. The photo at bottom left shows some of the shelving effects the company has obtained. Maximum use of space is gained by placing shelves in front of wall length tool racks. In the bottom right photo some of the chemical products for lawn and garden, plus various lengths of garden hose, give another view of the wide variety of products available at the Center.

## Comics Highlight Brea Fertilizer's 'Good Humor' Publicity Campaign

Definitely in the modern advertising trend is the new look and copy theme of the current fall and spring sales promotion program for Brea brand dry fertilizer on the Pacific Coast. Around the Los Angeles office of Jack C. Heath, advertising and public relations manager for Collier Carbon & Chemical Corp., Brea fertilizer producers, the promotion is known as the "Good Humor" campaign. The light and witty touch lives up to that label.

The copy is competitive but good humoredly so, and gets its commercial points across without leaving a bad taste or boring the reader with overwhelming technicalities.

Sticking to the four points of "High Analysis," "Free-Flowing," "Easier to Handle" and "Fieldside Delivery," the campaign illustrates each point with an appropriate cartoon and comment. →

The campaign is running in western farm publications and is featured also in the Brea dealer promotion through dealer publications and direct mailings. In the direct mailings, the cartoon alone is followed in the next mailing by the cartoon and message combined.

Dealers also get desk note pads carrying the cartoon reminders and

the Brea phone number. Pocket reminder notebooks also featuring the cartoon series are available to the dealer for grower customers with the admonition to "Keep yourself in good humor."

A further tie-in is available for the dealer's store in the form of wall or window posters featuring the animal drawings with the headline, "Who Says Dry Fertilizer Makes 'Dry' Reading?"

The principal aim of the "Good Humor" campaign is to get the advertising talked about, Mr. Heath says, and the different approach has already received a lot of comment. It is hoped in this way to develop a

(Turn to COMICS, page 12)

## Dealer, Aerial Sprayer Merge For Profits

By JESS BLAIR  
Croplife Special Writer

One source of friction with some farm chemical dealers is the competition from aerial spraying companies. Many times these pilots come into an area, work for a few weeks and leave. If the job is poorly done, farmers often become dissatisfied with all insecticides and may be reluctant to use them again.

Darle Fortmeyer, owner of the Hawkeye Spraying Service, Goodland, Kansas, has no fight with local dealers. In fact, he joins them whenever he sends his planes into an area. This has several advantages, he finds, so on each new area he contacts a local dealer who will work with his pilots.

Here is the way he started his spraying business in Torrington, Wyo. He sent Jim Morris and Bob Booton to work the area. Mr. Morris is the field manager, so he made a deal with the Chester B. Brown Co. to handle the chemicals. Since this is a large feed and bean company with a sizeable trade in insecticides and fertilizers, the work with the Hawkeye Spraying Service was turned over to Charles Blakely, manager of the farm chemical division.

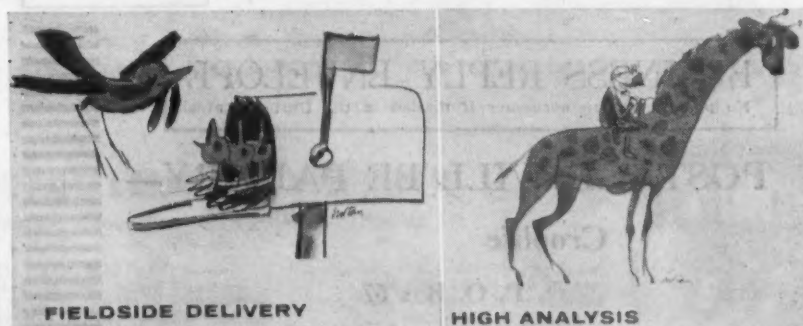
Mr. Morris and Mr. Blakely set up headquarters at the store, and radio equipment was installed so that either man could talk by short wave to the pilots in the field.

Since Mr. Blakely already had dozens of customers among farmers who needed their wheat fields and row crops sprayed, he had no trouble getting all the business the pilots could handle.

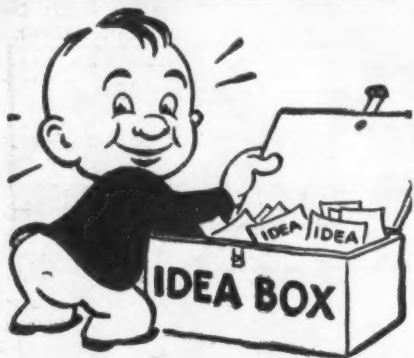
"Working with dealers has several advantages," said Mr. Morris, manager of the spraying service. "A strange outfit going into a new area has a difficult time getting business. The local dealer is already known and respected and can get us customers. He also knows the conditions of the area and particularly the credit rating of farmers. These land owners will trust him where they won't trust us. And of course it's an incentive for us to do a better job, because once we hook up with a good local dealer, we want to stay with him."

The dealer handles all chemicals and gets his regular profit. The Hawkeye Spraying Service gets paid by the acre, which usually averages about \$1.50. Their prices are stand-

(Turn to AERIAL SPRAYER, page 12)







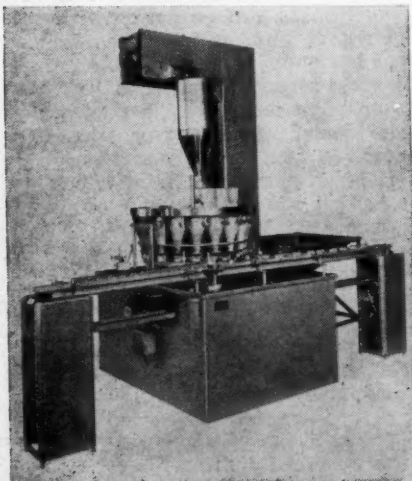
## What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

### No. 6842—Rotary Filler

Frazier & Son announce the Model "P" High Speed Rotary Whiz-Packer, a fully automatic volumetric filling machine. The machine is designed to handle a variety of dry products, ranging from powders to granular and bulk materials. The unit is custom built to plant specifications and



is powered by two ¼ h.p. motors. For more complete information, check No. 6842 on the coupon and mail to this publication.

### No. 6841—Booklet on Tin Fungicide

An organic tin fungicide, recently developed by a German chemical firm for treating leaf-spot and blight on potatoes, is discussed in "Tin and Its Uses," published by the Tin Research Institute, Inc. The article shows illustrations of crops which have been left untreated contrasted with crops that have been treated with the tin fungicide. Copies can be obtained by checking No. 6841 on the coupon and mailing.

### No. 7258—Weigher, Filler Bulletin

The Holm Model GF weighing and filling machine for packaging of free-flowing materials is described in a bulletin offered by the Richardson Scale Co., Clifton, N.J. Bulletin H-2 tells how the machine operates, lists specifications and describes component parts. A photograph of the unit is included and labeled for working parts. Check No. 7258 on the coupon and mail to this publication for copies.

### No. 6840—Aerial Equipment Brochure

Revised brochures describing Transland Aircraft's line of dust and

liquid spray aerial applying equipment are now available. Described in the publication are hoppers, agitator gates, spreaders, plumbing, pumps, dump and pressure regulator valves, trailing edge booms and nozzles, pressure gauges, pilot controls and spray kits. Also included is a current Transland price list. For copies, check No. 6840 on the coupon and mail to Croplife.

### Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

### No. 6830—Trailer Spreader

Simonsen Manufacturing Co. has added a tractor-drawn trailer spreader to its line of fertilizer spreaders. According to the company, the fertilizer dealer can start operations



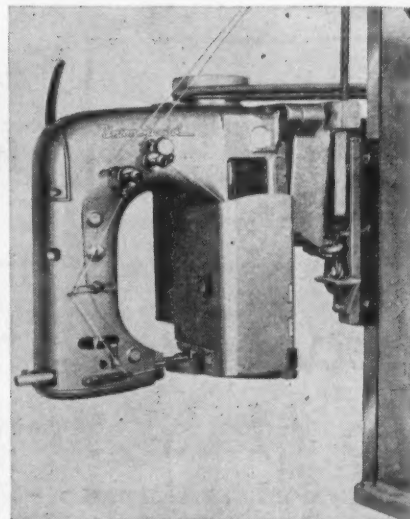
earlier because he can get into the fields with a tractor where a truck spreader couldn't operate. The trailer spreader has an all-weather wheel-drive assembly and the unit's fan operates from the power take-off of any standard tractor. For details, check No. 6830 on the coupon and mail to this publication.

### No. 6824—New Products Catalog

Publication of the latest edition of its products catalog describing properties and uses of 375 industrial, pharmaceutical and agricultural chemicals, is announced by the Dow Chemical Co. The 1958-59 issue is the fourth annual booklet issued by Dow. Containing a new cover and new features, the catalog is a ready reference for Dow's broad range of chemicals. This catalog may be obtained without cost by checking No. 6824 on the coupon and mailing it.

### No. 7239—High-Speed Sewing Head

Union Special Machine Co. announces a new high-speed sewing head, Style 53600 H, for closing medium and heavy weight bags made of burlap and single ply or multiwall paper. The machine incorporates a 25% speed increase over the previous machine used in that range, the com-



pany says. The unit has automatic lubrication and is adaptable for mounting on existing bag machine frames and columns. The machine can handle up to five-ply multiwall gusset type paper, the company says. Check No. 7239 on the coupon and mail for details.

### No. 6833—Fly Repellent

Union Carbide Chemicals Co., Division of Union Carbide Corp., announces that Crag fly repellent has been cleared by the U.S. Department of Agriculture as an ingredient for livestock spray formulations on a "no residue" basis. According to the company, the product is effective against horse flies, stable flies, horn flies, mosquitoes, house flies and gnats. For information, check No. 6833 and mail.

### No. 6838—Agricultural Chemicals Bulletin

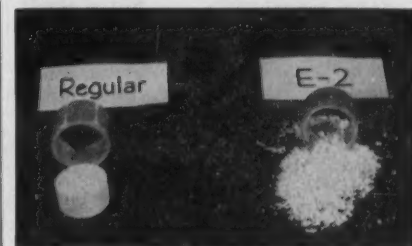
A bulletin entitled "Chemicals for Agriculture" has been published by Roberts Chemicals, Inc. The bulletin describes eight products currently offered by the company for the agricultural trade. Included in the list of products are fungicides, herbicides and insecticides. For copies of the bulletin, check No. 6838 on the coupon and drop in the mail box.

### No. 6831—Silica Insecticide

Davison Dri-Die Insecticide 67 is a new silica aerogel powder which is now on the market under an experimental label. Developed through research at University of California at Los Angeles, Dri-Die acts on insects in two ways: By dehydration and by a secondary chemical action. Insects need not eat the insecticide to be killed; simply crawling over the dust is sufficient. The Davison Chemical Division indicates there is no need for mixing, since the product is produced ready for treatment. Data on Dri-Die may be obtained by checking No. 6831 on the coupon and mailing.

### No. 6839—Ammonium Nitrate Fertilizer

An ammonium nitrate fertilizer, which the Monsanto Chemical Co. says will not cake during storage and is dust free, has been announced by the firm's inorganic chemicals division. Called "Lion E-2," the product can be stored indefinitely, the company says, and its higher density takes 20% less storage space. The product also remains free-flowing under unfavorable conditions, the com-



Send me information on the items marked:

- |  |   |
|--|---|
| <input type="checkbox"/> No. 6824—New Products Catalog       | <input type="checkbox"/> No. 6838—Agricultural Chemicals Bulletin |
| <input type="checkbox"/> No. 6830—Trailer Spreader           | <input type="checkbox"/> No. 6839—Ammonium Nitrate Fertilizer     |
| <input type="checkbox"/> No. 6831—Silica Insecticide         | <input type="checkbox"/> No. 6840—Aerial Equipment Brochure       |
| <input type="checkbox"/> No. 6832—Drum Phosphating Process   | <input type="checkbox"/> No. 6841—Booklet on Tin Fungicide        |
| <input type="checkbox"/> No. 6833—Fly Repellent              | <input type="checkbox"/> No. 6842—Rotary Filler                   |
| <input type="checkbox"/> No. 6834—Gibberellin                | <input type="checkbox"/> No. 7118—Bagging Scale                   |
| <input type="checkbox"/> No. 6835—Instrument Data Sheet      | <input type="checkbox"/> No. 7234—Bag Handle                      |
| <input type="checkbox"/> No. 6836—Anionic Surfactant Booklet | <input type="checkbox"/> No. 7239—High Speed Sewing Head          |
| <input type="checkbox"/> No. 6837—Bulletin on Pumps          | <input type="checkbox"/> No. 7258—Weigher, Filler Bulletin        |

(PLEASE PRINT OR TYPE)

NAME .....

COMPANY .....

ADDRESS .....

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

FIRST CLASS  
PERMIT No. 2  
(Sec. 34.9,  
P. L. & R.)  
MINNEAPOLIS,  
MINN.

BUSINESS REPLY ENVELOPE

No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY—

Croplife

P. O. Box 67

Reader Service Dept.

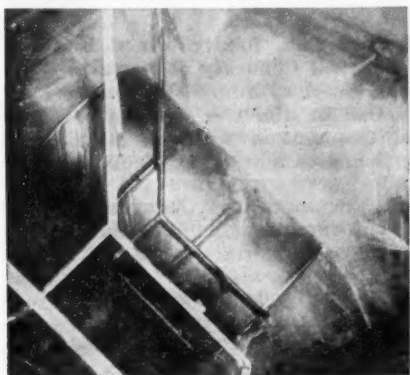
Minneapolis 40, Minn.



pany claims, which makes it easier and cleaner to handle. The photo above shows the product being subjected to a pressure test. Check No. 6839 and mail for details.

### No. 6832—Drum Phosphating Process

Bennett Industries, Inc., announces a steel drum phosphating process in which 30 and 55-gal. drums pass through an eight-step procedure. In the washer, hundreds of high pres-



sure nozzles spray drums inside and out in each of six stages. In the final two steps, the drums are dried and the cooling is controlled so that they reach the paint spray equipment at the best temperature for paint application, the company says. According to the company, the film of phosphate coating received in the process provides a good surface and inhibits rust and corrosion. For details, check No. 6832 on the coupon and mail.

### No. 7236—Bag Handle

The Multiwall department of Hudson Pulp & Paper Corp. announces a double side handle has been added to Multiwall bags. The handles support weights of 50 lb. and more, the



company says. With the new handles the bag can be carried like a suitcase. It also makes for easy pouring, the company added. For more information, check No. 7236 and mail to this publication.

### No. 7118—Bagging Scale

Burrows Equipment Co. has announced a new bagging scale. Known as Model No. 700, the scale occupies an area 18 in. square. It can be at-



tached quickly to a feed mixer, bin or hopper, and it will bag at the rate of six to eight bags a minute and the bag clamp is designed to hold paper, burlap or cotton bags of 50 to 100 lb. capacity. The weigh beam is built into the back of the scale. For details, check No. 7118 on the coupon and mail it to Croplife.

### No. 6835—Instrument Data Sheet

Techniques for making pH measurements in soils, emulsions, suspensions and oils are covered in a data sheet issued by the applications laboratories of Beckman/Scientific and Process Instruments Division. Proper care of pH electrodes is discussed and step-by-step procedures are detailed for pH measurements in dry, porous samples, oils and other water insoluble liquids. For details, check No. 6835 on the coupon and mail to this publication.

### No. 6837—Bulletin on Pumps

A bulletin covering pumps for fertilizer and temperature controlled liquids has been issued by the Dean Hill Pump Co. The publication discusses results of tests made with the pumps and contains data on performance. Illustrations and diagrams of the pumps are included. For further information, check No. 6837 on the coupon and mail.

### No. 6836—Anionic Surfactant Booklet

Antara Chemicals Sales Division of General Aniline & Film Corp. has published a 16-page booklet on the properties and uses of its Igepon series of anionic surfactants. The brochure describes the chemical derivation of Igepon and gives the chemical formula, functional properties and uses of each of the brands.

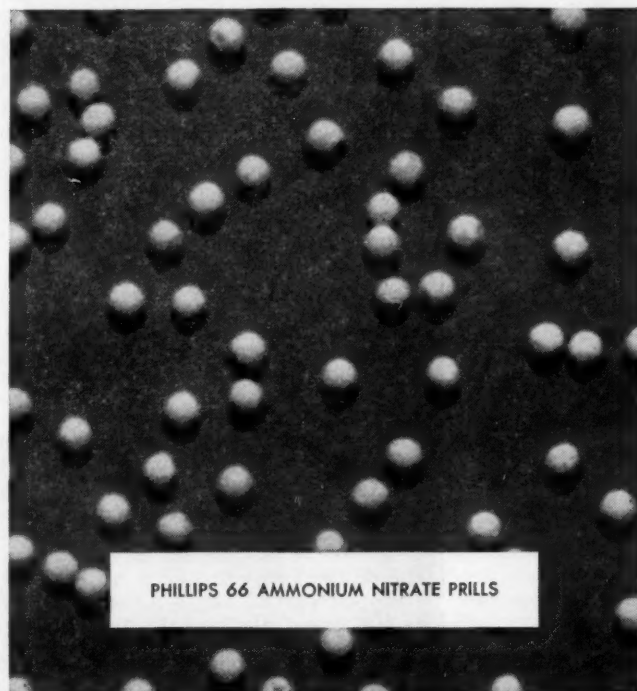
For copies, check No. 6836 on the coupon and mail to this publication.

### No. 6834—Gibberellin Publications

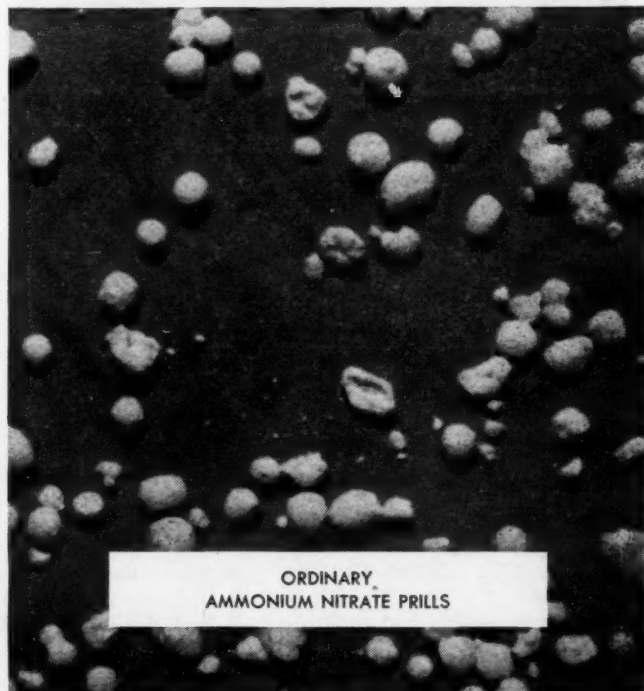
Two publications on gibberellin have been published by Merck & Co., Inc. One is a reprint of an article, "The Effects of Gibberellin on Economic Crops," by S. H. Wittwer and M. J. Bukovac of Michigan State University. The other is a booklet entitled "What You Can Tell Farmers About 'Bibrel.'" It contains information on the commercial use of gibberellin. For details, check No. 6834 on the coupon and mail to this publication.

#### WASHINGTON OFFICE

YAKIMA, WASH.—Collier Carbon and Chemical Corp. has established a Northern area office here, with Scott C. Hanson as the manager. The office is one of three area offices that Collier has recently opened.



PHILLIPS 66 AMMONIUM NITRATE PRILLS



ORDINARY AMMONIUM NITRATE PRILLS

## "EYE-WITNESS" PROOF

Unretouched Photos Show Dramatic Superiority of Phillips 66 Ammonium Nitrate



The evidence is there for all to see . . . new, guaranteed free flowing Phillips 66 Ammonium Nitrate is made up of uniformly round, hard and dry prills that *stay that way* in storage and during application.

This is the big difference that can make a big difference in your sales . . . because Phillips 66 Ammonium Nitrate delivers free flowing performance; and performance is what counts with you and your customers.

You get other extras, too, when you handle Phillips 66 Ammonium Nitrate. Consistent, convincing advertising of this outstanding product in leading farm papers; personal service from your Phillips 66 Fertilizer field man, and prompt deliveries are included in the profitable benefits of selling Phillips 66 Ammonium Nitrate.

Order your supply of Phillips 66 Ammonium Nitrate today.

### PHILLIPS PETROLEUM COMPANY

Phillips Chemical Company, a Subsidiary, Bartlesville, Oklahoma

#### SALES OFFICES:

AMARILLO, TEX.—First Nat'l Bank Bldg.  
ATLANTA, GA.—1428 W. Peachtree Street,  
Station "C" P.O. Box 7313  
BARTLESVILLE, OKLA.—Adams Bldg.  
CHICAGO, ILL.—7 South Dearborn St.  
DENVER, COLO.—1375 Kearney St.  
DES MOINES, IOWA.—6th Fl., Hubbell Bldg.

HOUSTON, TEX.—4910 Fannin Street  
INDIANAPOLIS, IND.—3839 Meadows Dr.  
KANSAS CITY, MO.—201 E. Armour Blvd.  
MINNEAPOLIS, MINN.—215 So. 11th St.  
NEW YORK, N.Y.—80 Broadway  
OMAHA, NEB.—3212 Dodge St.  
PASADENA, CALIF.—317 No. Lake Ave.

RALEIGH, N.C.—401 Oberlin Road  
SALT LAKE CITY, UTAH—48 So. Main  
SPOKANE, WASH.—521 E. Sprague  
ST. LOUIS, MO.—4251 Lindell Blvd.  
TAMPA, FLA.—3737 Neptune St.  
TULSA, OKLA.—1708 Ufca Square  
WICHITA, KAN.—501 KFH Building







JIM MORRIS (left), field manager of Hawkeye Spraying Service, is shown with Bob Booton (center), pilot, and Charles Blakely, in charge of chemical sales of the Chester B. Brown Co., Torrington, Wyo. A working agreement between the two firms has been very profitable for both.

## AERIAL SPRAYER

(Continued from page 9)

ard and apply to fields of all sizes. Once the pilots sprayed an eight-acre field which had high electric wires on all four sides. The charge per acre was the same as for large fields.

"This short wave radio system is not standard with spraying service," said Pilot Bob Booton, "but it's worth the cost. Ours has a 25 to 30-mile radius and they can call me from the store at any time. This saves time in routing the plane from one field to another. If something goes wrong or we exhaust our insecticides, a quick call to town will bring someone out in a hurry. In case of a fire, it might save hundreds of dollars and maybe a life."

The firm has five trailer tanks holding 510 gallons each. It is made so that chemicals may be mixed by a pump system on the rear end of the tank and then hosed into the airplane.

Safety precautions are standard with all companies, but owner Mr. Fortmeyer never overlooks any hazard. The pilots are equipped with rubber gloves and helmets in handling the organic insecticides. Usually the pilot takes a run or two over a field to learn all the hazards such as high wires, rock piles or trees.

"Once or twice I believe this has saved us trouble," said Mr. Booton. "Another way we avoid accidents is to rest during the day. I always take off some time at noon, no matter how many acres are ahead of us."

In addition to safety training, the managers and pilots are given intensive training in the newer chemicals and how to handle them. They also learn to be practical entomologists by working with the experts employed by the large sugar and bean companies. The pilots learn about fertilizers, crops and can identify any harmful insect found in this area.

"Sometimes a company man or county agent is not available," said Mr. Booton, "so we may be called upon to examine a field. We must identify the insects and recommend the proper chemicals and amount to apply."

The company does more than just

spray and dust for insects. It has done some aerial fertilization and this last fall had over 3,000 acres to seed from the air. Other jobs may be brush killing, weed killing and work for counties and cities in killing mosquitoes.

The firm's work with local dealers has been mutually satisfactory. Mr. Blakely with the local feed company was high in his praise of the cooperative agreement.

"It's sort of a temporary merger," he said. "Since this area is fast turning to aerial spraying, this plan enables us to more than double our sale of insecticides, and at the same profit, too."

## COMICS

(Continued from page 9)

stronger brand identification and preference for Brea products.

Charles Bowes Co., Los Angeles, is the advertising agency handling the campaign.

## GEORGIA CORN SETS ALL-TIME RECORD

ATHENS, GA.—Georgia corn reached an all-time record in yield and production during the past growing season and is now the state's No. 1 crop in value, J. R. Johnson, extension agronomist at the University of Georgia reports. The state's 2,711,000 acres in corn in 1958 yielded an average of 32 bu. per acre, 6 bu. more than the average of 26 bu. in 1957. The state's production this year was 16 million bushels more than a year earlier, and the value of the crop exceeded the previous year by \$20 million. The 1958 yield is more than three times the average existing when the agricultural extension service began an intensified campaign to raise corn production. From 1926-46 the average was 10.6 bu. per acre. The goal is an average of 40 bu. by 1965.

## What's Been Happening?

This column, a review of news reported in Croplife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

A talk on salesmanship, the showing of a time-lapse sound-and-color film, reports on progress made within the organization during the past year and the election of eight new members to its board of directors featured the opening day of the Agricultural Ammonia Institute's eighth annual meeting in Chicago, Dec. 3.

Montrose Chemical Company of California, jointly owned by Stauffer Chemical Co. and Montrose Chemical Company of Newark, has been awarded a contract by General Services Administration to supply more than 11,000,000 lb. of DDT for the worldwide anti-malaria program of the International Cooperation Administration. Dollar value of the award to Montrose is approximately \$2,800,000.

The Fairchild Chemical Division, Food Machinery and Chemical Corp., has announced the acquisition of Powco inventories from the Olin Mathieson Chemical Corp., together with the Powco trademark.

Producers in the 26-state commercial corn-producing area voting in a referendum Nov. 25, favored by 71.1% a new program calling for the elimination of corn acreage allotments and for a new method of setting support prices for the 1959 and succeeding crops.

The typical hourly cost of dusting or spraying crops from a 150-h.p., two-seated plane is estimated to be \$28.88, if the applicator uses his plane for 200 hours of flying time annually, and \$24.14 if his flying time is 400 hours annually, a U.S. Department of Agriculture economist reported.

The problems involved in introducing new agricultural chemical products on the market received the attention of 350 chemical marketing and production specialists at a joint meeting of the Commercial Chemical Development Assn. and the National Agricultural Chemicals Assn. in Baltimore, Nov. 20-21.

Pesticide dealers and salesmen had some earnest advice from a Food and Drug Administration official at the annual Rutgers University Pesticide Dealers' Conference in New Brunswick, N.J., on Nov. 20. The official admonished the "few pesticide salesmen or distributors more interested in peddling merchandise than in rendering a customer an honest service."

The announcement of the immediate construction of a 60-ton-per-day anhydrous ammonia plant in Arizona was made by C. P. Gould, president of Southwestern Agrochemical Corp., and Owen Cooper, chairman of the board of First Mississippi Corp.

Vertical integration in agriculture will continue to expand in the years ahead, Dr. Tyrus R. Timm, head of the department of agricultural economics and sociology at Texas A&M college, declared in Omaha recently. He spoke at the American Bankers Assn.'s seventh agricultural credit conference.

A presentation on how farmers accept new ideas, a panel discussion of equipment, inventory control and standardization as pathways to profits and a look at the changing economic society as a challenge to today's business leadership were the program highlights at a lively annual meeting of the National Fertilizer Solutions Assn. held in Cincinnati.

A full three-day convention featuring representatives of the fertilizer industry, the universities and the entertainment industries comprised the 35th annual convention of the California Fertilizer Assn. in Los Angeles. Some 500 attended, with many coming from distant portions of the country.

Ray Hubble, Medford, Ore., was elected president at the seventh annual Oregon State Weed Conference in La Grande, Ore. More than 250 Oregon farmers, ranchers, weed control specialists and chemical company representatives from all over the U.S. discussed weed control problems and latest scientific developments.

The U.S. Department of Agriculture has announced changes in the barter program through which surplus Commodity Credit Corp.-owned farm products are exchanged for strategic and other materials produced abroad. The changes will be effective immediately with respect to new barter offers.

The city of Baltimore will allow fertilizer grade ammonium nitrate to move freely through its port. That's the gist of an ordinance compromise brought about at a special hearing there, Nov. 10.

The Tennessee Valley Authority said Nov. 12 that it has discontinued the manufacture of concentrated superphosphate containing 48% plant nutrient, and is engaged in perfecting a process for the manufacture of superphosphate of a higher concentration.

Although the U.S. Department of Agriculture says in its November Demand and Price Report that "some reduction in realized net income appears to be in prospect" for farmers in 1959, this report must be diagnosed by crops and areas, said John Cipperly, Croplife Washington correspondent.

A new method of incorporating calcium cyanamid into soil shows great promise of increasing the chemical's effectiveness in controlling annual weeds, according to two University of California scientists.

More than 300 representatives of the fertilizer manufacturing industry heard thorough-going discussions on production techniques, equipment and the economics of preventive maintenance during the three-day fertilizer industry round table at the Mayflower Hotel in Washington, D.C.

"There are no short-cuts, push-buttons or ready-to-wear solutions" to the problems of the agricultural chemical industry, Frank S. Washburn, general manager of the Agricultural Division, American Cyanamid Co., declared at the closing session of the 25th anniversary meeting of the National Agricultural Chemicals Assn. in Savannah, Ga.

North Dakota Nitrogen, Inc., of Bismarck, N.D., announced it had awarded a contract to the Chemical & Industrial Corp., Cincinnati, as consulting and construction engineer for a fertilizer plant in the Bismarck area.





Doing Business With

# Oscar & Pat



It was three weeks now since Oscar Schoenfeld had placed cardboard signs on Pat's desk, signs that contained excerpts from an article on cutting costs which had appeared in Croplife.

Much to Oscar's chagrin, Pat had not said a word about the signs when he came to work late that morning. Pat had just sat down and quietly looked at the signs. Through the corner of his eye Oscar saw Pat's face whiten, and his hands grip the sign until the knuckles showed clearly. But Pat did not utter a word. He merely took the signs, carefully stacked them together and placed them neatly face down on a corner of his desk. Then he turned to reading a trade magazine.

To say that Oscar was disappointed was an understatement. Mentally he was ready to argue with Pat about the signs the minute the partner spoke, and he was quite unprepared for this sudden and prolonged silence, which was broken only by Tillie's spurt of rapid typing.

In fact, Oscar's liver has suddenly begun to pain him, and he had to get up and take one of the little blue pills which the doctor had given him to ease liver area tension.

But Oscar had no trace of liver trouble this morning, as he came to work. He was fifteen minutes early as usual. He always experienced satisfaction when he saw the big store and warehouse unlighted early in the morning. It meant he was the first to work, and he could silently criticize the others as they came to work a minute before or after seven.

Oscar's cheeks were cold and he rubbed them after he had hung up his four-year-old felt hat and his worn mackinaw.

It was then that he saw his desk!

"Ach, Himmel, was ist?" he cried.

On his desk stood a huge white cardboard, at least four by four feet, and right in the center of it was pasted a typed message on an 8½ by 11 in. sheet of paper.

"Ach!" cried Oscar aghast. "New white cardboard! It must be Pat. Spending money foolishly again."

Now he came closer so as to read the typed message. It was clearly not Tillie Mason's typing. There were too many mistakes and x'ed out passages for that. It looked as if someone not too familiar with a typewriter had two fingered this message. It was strange that at this moment Oscar recalled what a lousy typist Pat was.

"HEAR YE!" said the headline. "Did you know that a foremost business authority, Dr. Richard Strong-fellow, says a business man should analyze himself to see how many desirable and undesirable business qualities he has?"

"This is his list of poor business qualities:

1. Sour outlook.
2. Always critical.
3. Losing temper.
4. Habitually arguing.
5. Always negative.
6. Nagging others.
7. Being sarcastic.
8. Being rude to others.
9. Looking glum.
10. Being stubborn.
11. Continually harping on one subject.
12. Thinking you know it all.
13. Thinking your way is always right.

If the shoe fits——"

Oscar gasped as he re-read Rule 13. "Thinking your way is always right!" He straightened. "I know I'm

right!" he bellowed. "That—that Irish, he don't know noddink. I know twice as much as he knows."

Now a warm red suffused his face. "He did it! He did it!" he stormed walking up and down. "He stayed down here last night chust to do this. Und he bought some expensive cardtboard, too, for the sign, chust to get me madt. He could have used old cardtboardt like I did. Ach, there is lots of it out back in the warehouse."

At this moment Tillie came in, and

Oscar turned on her. "Did you type this—this for him?" he demanded angrily. "Did you?"

He pointed at the huge sign on his desk.

Tillie's eyes widened, and she walked over to inspect the sign. As she read the copy, she began to smile, but Oscar, standing behind her, could not see her face.

Then Tillie turned to Oscar. "I'm insulted!" she said sharply. "If I couldn't type any better than that, I'd quit. Who do you suppose did it?"

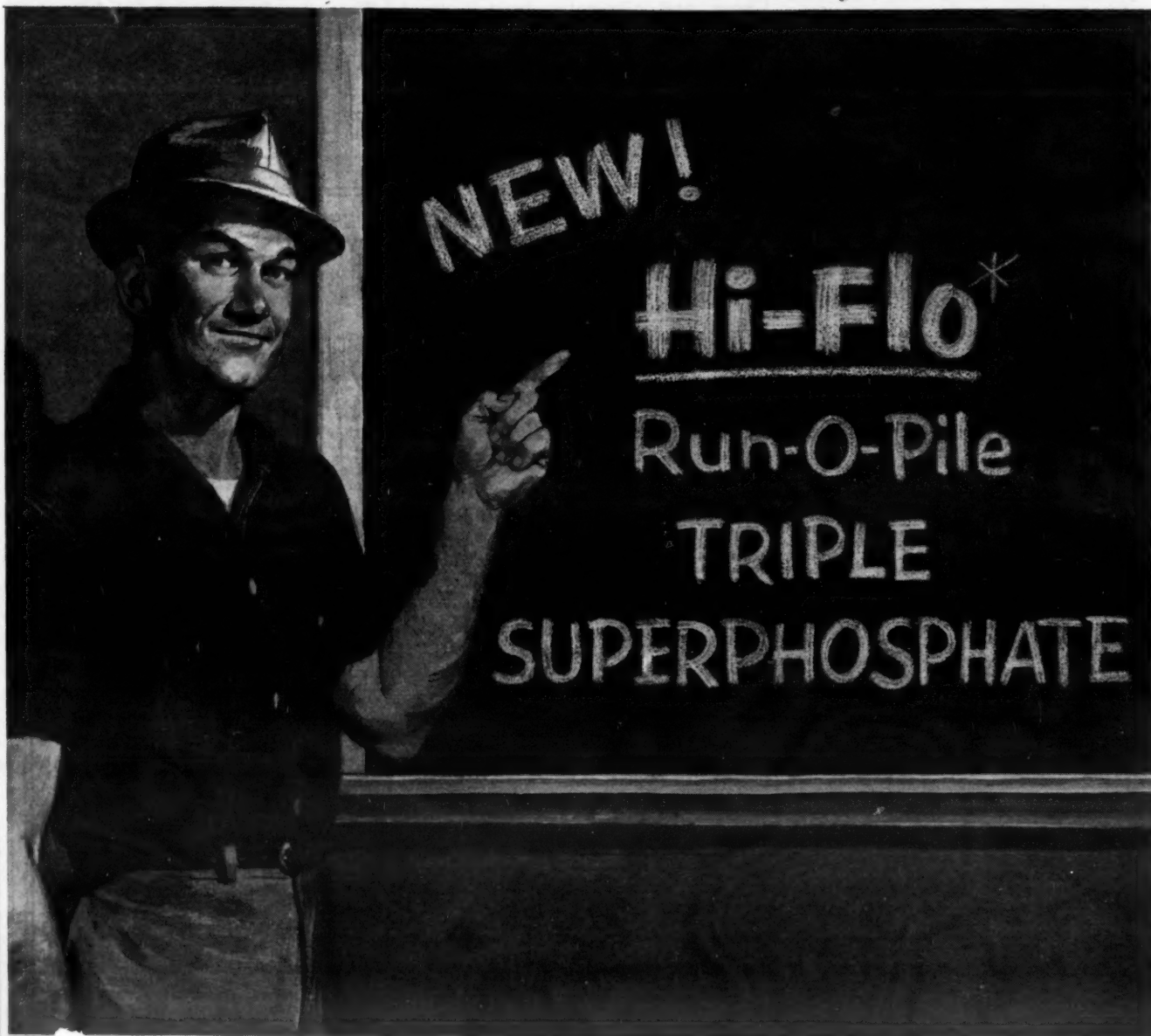
"Ach, you know very well who did it!" Oscar shouted, his eyes bulging. "That—that Irish."

"Well," said Tillie matter of factly as she began to hang up her coat, "you put a lot of signs on Pat's desk the other week about cutting costs, etc. If he did this, well, one good turn deserves another, you know."

"But everything I said on those signs was true," Oscar blurted. "And not one of the things he says about me here is true. Ach, I know myself. I know what I am. He don't. Don't you think he's wrong, Tillie, what he says about me?"

Tillie coughed. "I don't feel so hot today," she said, "and I never speak the truth, I guess, when I don't feel well. I guess I'll just crawl under the Fifth Amendment if you don't mind."

Oscar raved for a few more minutes and it got so bad, Tillie finally (Turn to OSCAR & PAT, page 14)



\*T.M. Reg. App'd for

## Big Dave establishes a new standard in mixing Triples!

Davison's new Hi-Flo Run-O-Pile Triple flows better because it contains less dust. It's easier to handle, cuts unloading costs, and increases your production efficiency. It represents a *real advancement* in mixing Triples.

Hi-Flo Run-O-Pile Triple Superphosphate, made only by Davison, has high capacity for absorption of ammonia in processing either granulated or powdered mixed fertilizers because of its porosity, friability and constant 46/47% P<sub>2</sub>O<sub>5</sub> content. It has proven satisfactory for granulating in several different types of granulating equip-

ment. Hi-Flo Run-O-Pile has passed all tests it's been put to in batch and continuous ammonia-tors. It helps you produce low-cost formulas.

You will like to work with non-dusting Hi-Flo Run-O-Pile Triple. Big Dave says, "We can ship now. Let's talk it over."

**W.R. GRACE & CO.**  
DAVISON CHEMICAL DIVISION  
BALTIMORE 3, MARYLAND





## SUPPLY CENTER

(Continued from page 9)

the effectiveness of such advertising.

The store handles a general line of nursery and gardening products and does some landscaping in the area. About 90% of the center's business is done within a six-mile radius, serving Millbrae, Burlingame and San Mateo as the principal cities in the distribution area.

Dry store merchandise accounts for about 36% of the total annual volume of sales and this is steadily increasing. Mr. Wilson explained the steady rise in gardening supply sales by saying, "The home gardener now expects to get products allied to home and garden when he buys plants from the nursery."

Mr. Wilson also stated that the center endeavors to keep all employees well informed on gardening problems and cures and new merchandise because the home gardener of today "comes for information almost as much as for plants."

A long driveway separates the store and covered area from the

section where bedding plants are displayed. The store and arcade are of dark wood construction. The main store area is on the ground floor with enclosed office space at the south end. A second floor has space available for additional offices and storage area if necessary.

Chemicals, small bags of fertilizer, tools and various other products for use in the garden are displayed in the store. Shelves on the north wall hold a wide assortment of sprays and dusts and nearby are many types of garden hose.

One of the highlights of the displays in the small store is the tool rack where shovels, hoes, rakes and brooms are set out. In front of the rack, a three-foot-high shelf houses smaller gardening tools. This arrangement centralizes the store's tool area and eliminates wasted space commonly found in displays of long handled tools. Several types of lawn mowers are also shown in a small floor display in front of the tool rack.

One section of the arcade facing



THIS FRONT VIEW of the main building at Peters and Wilson Garden Center, Millbrae, Cal., shows the unusual two-story structure of the building with its arcade and 16-ft. overhang in the front.

the driveway and parking area is used for storing large bags of fertilizer. Customers can park their cars next to this covered area and load the bags directly. This eliminates the use of small trucks to transport such products from distant storage points. Three trucks are used for deliveries twice a week. A small warehouse, located at the southern extremity of the nursery, has sliding doors on each side so that the large sacks of fertilizer and peat moss stored there can

be loaded from two sides into the store's trucks. Directly across the driveway from this building is another small structure. In earlier days this was the store's main building, but is now used for housing a variety of products.

Completing the Garden Center's layout is the nursery located in back of the store and arcade and running the width of the lot. In it are the various plants, trees and flowers handled by the center.

## OSCAR &amp; PAT

(Continued from page 13)

stopped typing. "Gosh, this fighting is getting to be awful between you two. I don't know if I can stand it any longer. Why don't you two just call it a day and close up? Stage a GOING OUT OF BUSINESS SALE or GO BANKRUPT. Get what you can out of it and forget it."

Oscar's breath came sharply. "Go out of business sale! Go bankrupt! Ach, why should we do that? This business pays—and when we get all our collections in. Both of us got lots of money invested here. If that Irishman would only—"

"Well," interrupted Tillie philosophically, "if that is the way you feel about it, I guess you're just hooked with Pat, and he's hooked with you! You might as well face it."

## Illinois Farmers Use 15% More Fertilizer

URBANA, ILL.—Illinois farmers used about 15% more commercial plant food from January through June this year than in the same period in 1957.

L. T. Kurtz, University of Illinois agronomist, reports that 1958 may prove to be a record year for plant food application if fertilizer use is also high in the fall.

Fertilizer use hit a previous peak in 1953. The figure then dropped and has not changed much in the past five years.

Mr. Kurtz says annual use of mixed fertilizer in Illinois amounts to about 500,000 tons. About the same amount of rock phosphate is spread.

Some 155,000 tons of nitrogen materials, 80,000 tons of soluble phosphates and a like amount of potash materials are also spread. Annual fertilizer use in Illinois, not including limestone, totals about a million and a half tons.

More intensive cropping has steadily increased the use of nitrogen fertilizers, according to Mr. Kurtz. Soluble phosphates have also climbed steadily.

Today's commercial fertilizers also contain a higher average plant food analysis than common mixed fertilizers of 10 years ago. Mr. Kurtz says the analysis average has increased by half since 1947.

## RETAIL STORE

CAMPBELL, CAL.—Elwood E. and Verna P. Grable have opened Grable's Nursery at 760 Steinway Ave., Campbell, to retail farm and garden chemicals and other supplies.

## Books on Fertilizers And Their Use

## FOREST FERTILIZATION

Donald P. White and Albert L. Leaf

A bibliography, with abstracts, on the use of fertilizers and soil amendments in forestry. Useful to those interested in prospects of a plant food market in forest areas, the book resulted from a special two-year study at the college of forestry, Syracuse University, Syracuse, N.Y., under sponsorship of the Nitrogen Division of Allied Chemical & Dye Corp. The book contains 300 pages, 700 references, with abstracts, and covers the period from 1865 through 1956. Includes the use of fertilizers in forest management ..... \$3.00

## SOIL FERTILITY AND FERTILIZERS (1956)

Samuel L. Tisdale and Werner L. Nelson

An advanced college text, for juniors and seniors, following backgrounding course in soils. Covers elements required in plant nutrition, their role in plant growth, and the soil reactions to these nutrients. Several chapters on manufacture, properties and agronomic value of fertilizers and fertilizer materials. Latter part covers soil fertility evaluation and use of fertilizers in sound management program. 430 pages, cloth bound ..... \$7.75

## PLANT REGULATORS IN AGRICULTURE

Dr. Harold B. Tukey

Published September, 1954. A text book giving background material for county agents, farmers, citrus growers, nurserymen, gardeners; providing fundamentals and general principles; covers encouragement of roots by plant regulators, control of flowering and fruit setting, parthenocarp, abscission, prevention of preharvest fruit drop, delaying foliation and blossoming, maturing and ripening, inhibition of sprouting and weed control. Brings together specialized knowledge of 17 authorities in the field, with two chapters written by Dr. Tukey, head of department of horticulture at Michigan State College. 269 pages ..... \$6.50

## THE CARE AND FEEDING OF GARDEN PLANTS

Published jointly by the American Society for Horticultural Science and the National Plant Food Institute.

An entirely new, one-of-a-kind book. It is designed to acquaint readers with nutritional deficiency symptoms or "hunger signs" of common yard and garden plants including lawn grasses, shrubs, flowers, garden vegetables, and cane and tree fruits. It stresses plant "feeding," or "what makes plants grow." Sixteen of the nation's leading horticultural authorities collaborated in its preparation. Cloth bound, 300 pages of text and illustrations including 37 pages in full color ..... \$3.00

## AUXINS AND PLANT GROWTH

A. Carl Leopold

A 366-page book, complete with bibliography, appendix, and index, discusses the fundamental and applied aspects of growth hormone and synthetic auxin action in plants. These are of interest to all workers in agricultural chemicals—for weed control, flowering control, fruit set, flower or fruit drop and plant propagation. The text is divided into two sections, (1) fundamentals of auxin action, and (2) auxins in agriculture. These cover developmental effects of auxins, the physiological and anatomical effects of their application, the chemical nature of growth regulators, and methods of applying auxins and their persistence in plants and soils. Other subjects covered: rooting, parthenocarp, flower and fruit thinning, control of pre-harvest fruit drop, flowering, dormancy and storage, herbicides, miscellaneous uses of auxins, and potentials of auxins and auxin research. Published by University of California Press..... \$5.00

## ECONOMIC AND TECHNICAL ANALYSIS OF FERTILIZER INNOVATIONS AND RESOURCE USE

By E. L. Baum, Earl Heady, John Pesek and Clifford Hildreth.

This book is the outgrowth of seminar sessions sponsored by TVA in 1956. Part I—Physical and Economic Aspects of Water Solubility in Fertilizers. Part II—Examination of Liquid Fertilizers and Related Marketing Problem. Part III—Methodological Procedures in the Study of Agronomic and Economic Efficiency in Rate of Application, Nutrient Ratios and Farm Use of Fertilizers. Part IV—Farm Planning Procedures for Optimum Resource Use. Part V—Agricultural Policy Implications of Technological Change. It presents new methodological techniques for more efficient handling of research problems related to fertilizers and provides more meaningful answers to problems of practical application ..... \$4.50

## HUNGER SIGNS IN CROPS—Second Edition

A symposium—published jointly by the American Society of Agronomy and the National Plant Food Institute.

A comprehensive study of nutrient-deficiency symptoms in crops compiled by 19 of the leading authorities in the field. It is being widely used by college professors, research and extension specialists, industrial chemists and agronomists, county agents and teachers of vocational agriculture. Many farmers have found it of particular value in planning their fertilizer programs. Cloth bound, 390 pages, 242 illustrations, including 124 in full color ..... \$4.50

## USING COMMERCIAL FERTILIZER (1952)

Malcolm H. McVickar

Dr. McVickar is chief agronomist of the National Fertilizer Assn. The book deals specifically with commercial fertilizer, how it is produced and how to use it. It is non-technical. It includes chapters on how to measure fertility of soils, secondary and trade-element plant foods. 208 pages, 106 illustrations, cloth bound..... \$3.50

## COMMERCIAL FERTILIZERS, Their Sources and Use—Fifth Edition (1955)

Gilbert H. Collings

Based upon the author's practical experience as an experiment station agronomist and teacher, and incorporating information on recent developments by agronomists, chemists, engineers and fertilizer manufacturers. Authoritative on problems concerning commercial fertilizers and their use in gaining larger yields. 160 illustrations, 522 pages ..... \$8.50

## APPROVED PRACTICES IN PASTURE MANAGEMENT (1956)

M. H. McVickar, Ph.D.

Outlines clearly and concisely how to have productive pastures to furnish high-quality forage for livestock, economically and efficiently. Written for grassland farmers. Covers the important activities associated with establishment, management and efficient use of pastures as grazing lands or as a source of fine winter feed for livestock. It is as specific as possible for all U.S. pasture areas. Twenty chapters, 256 pages, illustrated ..... \$3.00

## MANURES AND FERTILIZERS

A survey by the Ministry of Agriculture and Fisheries, dealing with soil analysis, inorganic fertilizers, waste organic substances and principles of manuring. In language to give the farmer basic principles of increasing soil fertility by the application of natural organic manures and synthetic inorganic fertilizers. Many important tables on quantitative data ..... \$2.50

## Order From Croplife

Reader Service Department  
P.O. Box 67  
Minneapolis 40, Minn.

(enclose remittance)



## SHOP TALK



## OVER THE COUNTER

By Emmet J. Hoffman  
Croplife Marketing Editor

Most successful farm store promotions accomplish one main purpose, that is:

To attract prospective customers to the store by means of a carefully laid and well executed plan; and to serve these prospects so well and pleasantly that they'll come back again and again to buy.

Most promotions are good; a few fail. Why? The chief reasons for falling short of success appear to be "too little, too late and too disorganized." In a few cases failure apparently comes as a result of the promotion being "too costly"—something like betting the entire bankroll on a go-for-broke effort. Some obvious factors, such as plenty of parking space, cannot be disregarded no matter how well the promotion is planned.

These are some of the successful types of promotions used by farm supply dealers:

(1) The grand opening is a grand promotion opportunity. It is an ideal device for bringing a lot of prospective customers into the store for the first time. Teaser advertising, plus regular advertising, is essential.

Most grand openings that draw good-sized crowds feature special purchases, bargain-priced merchandise, give-aways and drawings for prizes. Prospects should be asked to register their names, addresses and phone numbers for drawings and for later promotional use. This customer prospect list alone justifies much of the expense of a "three-ring circus" opening.

The grand opening must be at a time when most prospects can come. Ample stocks of merchandise and plenty of courteous sales help specially trained for the event are needed. But the main ingredients of the successful grand opening appear to be plenty of advance advertising, honest bargains and worthwhile prizes.

(2) The techniques for staging an open house are much the same as those that apply to a grand opening. You must use as a reason for the open house such events as the completion of remodeling, the installation of new equipment, the arrival of a new product or a new line or the completion of an expansion project.

As in a grand opening event, the store should be well stocked with merchandise, the sales staff well briefed, prize drawings arranged and sufficient advertising placed in advance.

(3) The demonstration or clinic is one of the most underrated and overlooked promotions that can be staged by a farm store. It can be tied in well with a timely problem or new development. For example, during the past summer one farm supplier took advantage of an unprecedented wave of plant diseases in his area to stage a clinic.

Pesticide manufacturers provided experts without charge to give advice on treating plant diseases. Diseased plants were exhibited. The result was a turnout which thronged the store and more pesticides were sold than had ever moved in any day previously.

The main advantage of a clinic is that free specialized information not available to any other firm in town is available to the prospect. Farm stores should make the most of this fact in advertising.

Power mower demonstrations have proven quite successful. Good-sized numbers of shoppers will turn out if invited to stop at the dealer's to run a power mower on the grounds. It is best to have several demonstrators

available so that the shopper can have a choice. In addition, the dealer gets his lawn mowed but, what is most important, a fairly high ratio of sales to shoppers will result.

One Texas dealer promotes garden

tractors by giving a small gift such as bulk seed, a screwdriver or key chain to any prospect who will start the engine and steer the tractor out to the back lot. This dealer (in a city of 5,000 population) now sells about 150 garden tractors a year.

Another dealer who sells dozens of hose end sprayers yearly keeps a row of them in his outside lot in summer. The sprayers are filled with water and signs invite the customers to test one or all of them. Occasionally a shopper will get slightly damp but sales have increased measurably since demonstrations were begun.

One dealer in a non-commercial peach area devised a promotion to attract home owners with a few peach trees in their back yards. The dealer, who had several peach trees of his own on his lot, advertised a spraying demonstration for a Sunday afternoon. Tables, literature and extra salesmen were on hand. A good-sized crowd arrived and with the aid of a loudspeaker the dealer discussed

peach tree pests and outlined a sound spray program, demonstrating each step.

In addition to producing many on-the-spot sales, the demonstration had long-lasting results because many people returned later to mention the event and make additional purchases.

## NURSERY STORE

PARADISE, CAL.—Max and Lucille Henry have opened the M. J. Henry Nursery Store in Paradise at 5826 Clark Rd. to sell at retail, farm and garden fertilizers, insecticides, and other chemicals, and supplies.

## SELLS NURSERY

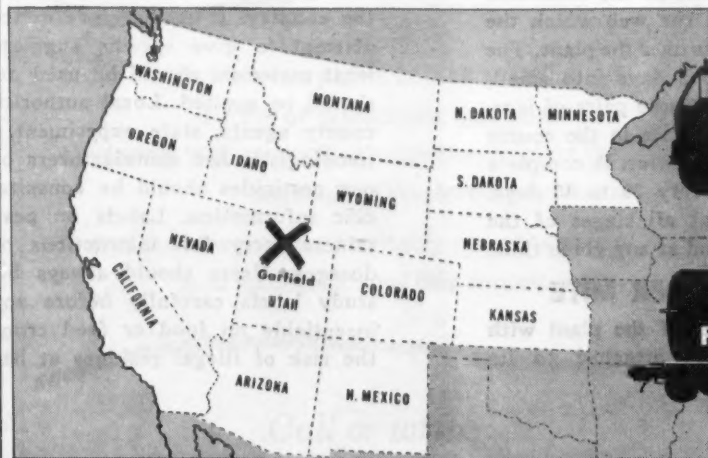
MONTEREY, CAL.—The Cortney Nursery at 812 Park Ave., Monterey, has been sold by Eduardo and Matilde Crespillo to Isabell Arthur and Christina Serge. They are continuing to operate the retail outlet, selling farm and garden chemicals and other supplies.

Prompt delivery...  
straight or combined loads...  
anywhere in the West...

your shipment gets there  
**FAST** when you order  
**ANCHOR** phosphates!

Your customers get the fast service they like when you order *Anchor* for their phosphate needs. Western Phosphates' centrally located plant at Garfield, Utah, and network of in-transit warehouses assure prompt delivery to Western growers.

For full information, call any office of Wilson & Geo. Meyer & Co., Intermountain, sales agent for these 7 Anchor products. They will expedite your order.



Western Phosphates' plant at Garfield, Utah, is centrally located to serve all the west... fast!

**ANCHOR**  
PELLETED PHOSPHATE FERTILIZERS

Produced by WESTERN PHOSPHATES, INC., Garfield, Utah



Distributed by  
WILSON & GEO. MEYER & CO.  
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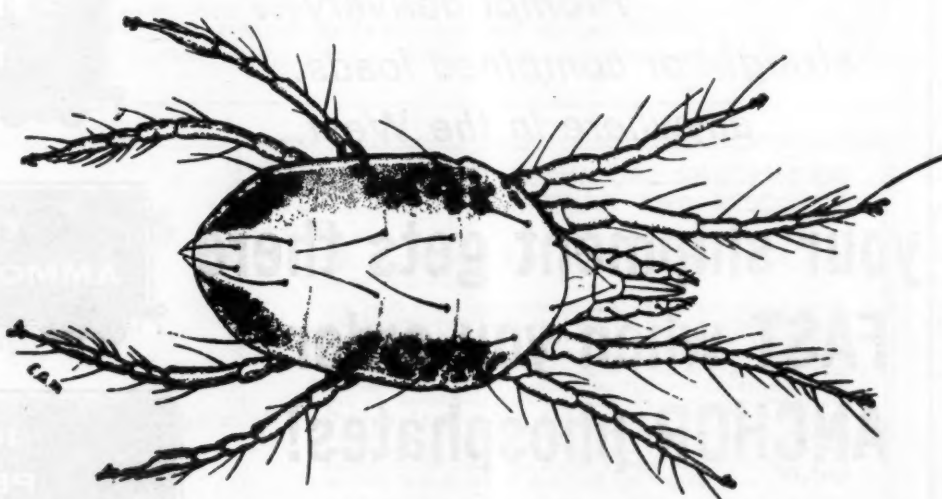
CALIFORNIA: San Francisco, Fresno, Los Angeles, El Centro—ARIZONA: Phoenix—OREGON: Portland—WASHINGTON: Seattle—IDAHO: Twin Falls—COLORADO: Denver—UTAH: Salt Lake City



# BUG OF THE WEEK

Mr. Dealer—Cut out this page for your bulletin board

## SPIDER MITE



### HOW TO IDENTIFY

The adult female spider mite is an eight-legged, pale-yellow or greenish mite, measuring only about 1/60th inch in length. The male is even smaller, being only about 1/80th of an inch long. Two dark spots, composed of the food contents, show through the transparent body wall. The body is oval in outline and sparsely covered with spines.

### HABITS OF SPIDER MITE

After mating, female mites begin laying eggs at the rate of from 2 to 6 a day, each depositing a total of 70 or more eggs during her lifetime. Spider eggs are spherical, shiny and extremely minute, attached to the underside of the leaves, usually to the web which the mite spins wherever it goes over the plant. The eggs hatch in from 4 to 5 days into small, crawling young with only three pairs of legs. Female mites molt three times in the course of their growth, the males twice. A complete generation is produced every 20 to 40 days, but these overlap so that all stages of the mites may usually be found at any given time.

### DAMAGE DONE BY SPIDER MITE

The mite pierces the leaf of the plant with two sharp slender lances attached to its

mouth, and sucks the sap. Not only does the loss of sap damage the plant, but some entomologists believe that the plant is poisoned by the feeding insect. Many vegetable crops are damaged, but most serious injury is sustained by beans, corn, tomato, eggplant, celery and onion crops. Distribution of this pest is world-wide.

### CONTROL OF SPIDER MITE

Application of control materials, whether by spraying or dusting, must be thorough in order to cover the underside of leaves. Recommendations for control materials, timing, application practices, dosages, etc., may vary widely in different states and sections of the country. It is therefore difficult here to attempt to give specific suggestions as to what materials should be used or how they should be applied. Local authorities such as county agents, state experiment station entomologists, and manufacturers of the various pesticides should be consulted for specific information. Labels on pesticide containers carry full instructions on use and dosages. Users should always be urged to study labels carefully before applying any insecticide on food or feed crops to avoid the risk of illegal residues at harvest time.

Drawing of Spider Mite courtesy of U.S. Department of Agriculture.



## Minnesota Economist Discusses Pros, Cons of Integration in Agriculture

ST. PAUL — The big question in vertical integration for the livestock farmer is not whether it will take place, but what form it will take, a University of Minnesota extension economist said recently.

Hal Routhe, farm management specialist, told Minnesota county agents that "Integration—sometimes called contract farming—is here as a method for arriving at greater efficiency in production and marketing. The question is: Will it be farmer-led or business-dominated?"

"So far," Mr. Routhe pointed out, "most of the interest in integration in livestock farming is at the feed supplier level." He spoke at the annual agricultural extension conference on the St. Paul campus.

Integration, he said, is any type of agricultural business in which two or more steps in production, processing and distribution—which were formerly independent—are controlled in one place. The broiler industry, for example, is almost entirely integrated and there's a trend toward integration in hog and beef feeding.

"Integration won't envelop us overnight, but it will be a continuing trend," Mr. Routhe said. "It will help the trend to greater specialization on farms and will lead to greater total output. With the continuing trend toward greater volume and capital requirements to handle it, integration offers many producers an opportunity to get greater financing. It will mean more geographical concentration of production."

As advantages, Mr. Routhe said integration could reduce risks to farmers, since production and price would be more likely to be stable. "Under some integration schemes, the producer shifts part of his price risk to another party, or he reduces his work by bargaining outside the regular market channels. How this would work, of course, would depend on the type of arrangement."

Also on the advantage side, Mr. Routhe listed more efficient use of labor under integration, improved technology, better quality control and greater ability to gear production to market demand.

Mr. Routhe also named some disadvantages of integration. "There will be some loss of freedom," he said, "but it depends on the risk assumed by the integrator. There is a danger of unfair contracts which might put farmers in unequal bargaining positions."

"Control of decision-making could be shifted from the farm to other business. In an extreme case, this could put the farmer in the role of a

hired laborer. Increased scale of operation could change the status of family farming, but whether this will actually happen is questionable.

"Integration could force the farmer to accept management decisions which are less profitable to him. As an example, he could be contractually forced to sell hogs at 200 lb. when it would really pay to hold them to higher weights.

"If there are few integrators in an area, the producer may be forced to follow undesirable terms or be stuck with unused facilities."

Mr. Routhe urged farmers themselves to do these things:

"Watch for changes. Plan your production and marketing program to make good use of labor and gear production to changing consumer demand. Pick the livestock enterprise system best adapted to your farm and follow a good breeding program.

"If you sign a contract, make sure you can live with it. And farmers need to look into ways to band together to gain bargaining power."

## Nebraska Fertilizer Dealer Training Conference Planned

LINCOLN, NEB. — The ninth annual Fertilizer Dealers Training Conference will be held at the Pershing Municipal Auditorium here, Jan. 13-15, it was announced.

Among the topics to be discussed on Tuesday afternoon, Jan. 13, are:

"The Future of Fertilizers in Nebraska," "The Fertilizer Industry and Its Trade Association"—R. E. Bennett; "Price Cutting and Business Management"—H. W. Ottoson; "A Banker Looks at Fertilizer Financing"—Roger Cunningham; and "Zinc Pays on Corn, Sorghum, Beans"—M. D. Weldon.

At the dinner that evening, Dr. A. C. Breckenridge will discuss "The University of Nebraska; Its Responsibilities and Plans."

On Jan. 14, conference visitors will hear: "Efficiency in Corn Production"—Arlan Woltemath; "Recent Research on Phosphorus and Sulfur"—H. F. Rhoades; "Nebraska Needs More Phosphate—Soil Tests Tell Us Where"—Delno Knudsen; and "Fer-

tilizer Solutions—Methods and Results"—Robert A. Olson.

Jan. 15, will be taken up with discussions on: "Liming Increases Fertilizer Efficiency"—Clinton A. Hoover; "Fertilizers Versus Legumes (Panel Discussion)"—F. L. Duley, moderator; "Soil Tests—A Must in Efficient Fertilizer Use"—Mr. Knudsen; and "Trace Element Research—What's Going On in Nebraska"—M. D. Weldon.

## Committee to Meet

ITHACA, N.Y. — The executive committee of the fertilizer section, National Safety Council, will hold its winter meeting on Feb. 13, at the Heart of Atlanta Motel, Atlanta, Ga., announced George L. Pelton, chairman. This is a change from a previously announced date, Mr. Pelton said.

## QUARTERLY DIVIDEND

NEW YORK — The board of directors of the American Agricultural Chemical Co., New York, has voted to pay a regular quarterly dividend of 75¢ per share on all common stock, payable Dec. 19, 1958, to stockholders of record at the close of business Dec. 8, 1958. There are presently 627,969 shares of stock outstanding.

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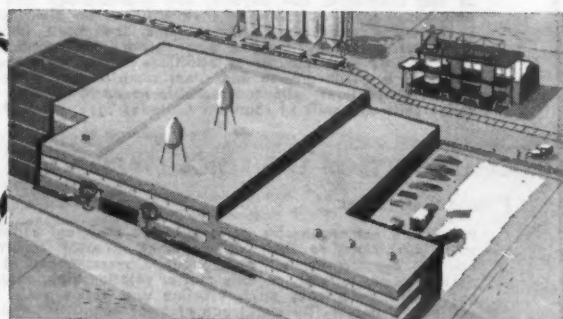
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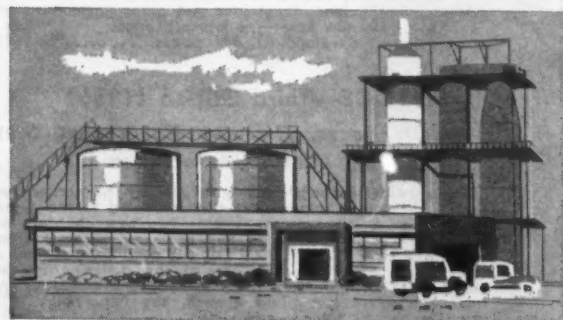
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## MONTROSE

(Continued from page 1)

Chemical Co., Newark, and Stauffer Chemical Co.

The plant will rely upon Mexican raw materials including benzol, alcohol, sulfuric acid and salt. It will obtain chlorine from its own electrolytic caustic-chlorine plant now under construction which will be in operation in the spring of 1959. Thus, rayon-grade caustic soda and chlorine will also be available from the new plant. Caustic for rayon manufacture is currently being imported into Mexico.

Montrose Chemical Corporation of California performed the engineering and design for the DDT plant and provided the experienced personnel to train the Mexican operators and to supervise production.

Engineering for the chlorine-caustic plant was done by Krebs and Cie and Societe Alsthom, both of Paris, France. Equipment for this plant was furnished by Societe Intercomi of Paris.



## Industry Patents and Trademarks

2,862,847

**Pesticidal Arenethiosulfonates.** Patent issued Dec. 2, 1958, to W. E. Craig and Chien-Pen Lo, Philadelphia, Pa., assignors to Rohm & Haas Co., Philadelphia. Salts of a metal from the group consisting of zinc, lead, mercury, and iron and an acid from the group consisting of benzenethiosulfonic, chlorobenzenethiosulfonic, and methylbenzenethiosulfonic acids.

2,862,848

**Emulsifiable Insecticide Compositions.** Patent issued Dec. 2, 1958, to Vincent J. Keenan, Ardmore, Pa., assignor to the Atlantic Refining Co., Philadelphia. A water emulsifiable insecticide composition consisting essentially of from 10% to 40% by weight of a xylene soluble insecticide, from 50% to 89.5% by weight of an aromatic hydrocarbon solvent selected from the group consisting of benzene, toluene, xylene, higher alkylated aromatic hydrocarbons and methyl naphthalene, and from 0.5% to 10% by weight of a salt of a mixture of alkyl benzene monosulfonic

acids wherein the sum of the carbon atoms in the alkyl groups attached to each benzene ring ranges between 11 and 19, each benzene ring having one alkyl group attached thereto ranging between 11 and 13 carbon atoms in length, said salt being selected from the group consisting of morpholinium, pyridinium, picolinium, trialkanol ammonium, dialkyl alkanol ammonium, and tetra-alkyl ammonium, wherein the alkanol and alkyl groups contain from 2 to 4 carbon atoms.

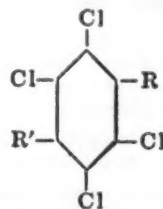
2,862,850

**Dithiocarbamate Rodent Repellent Compositions and Methods.** Patent issued Dec. 2, 1958, to Lyle D. Goodhue, Bartlesville, Okla., assignor to Phillips Petroleum Co. A method for protecting growing plants and other materials normally consumed as food by rodents which comprises applying to said plants and other materials, in an amount sufficient to effectively repel said rodents, a compound selected from the group consisting of N,N-dimethyl-S-tert-butylsulfenyl dithiocarbamate and N,N-dimethyl-S-methylsulfenyl dithiocarbamate, in-

corporated with an inert repellent adjuvant as a carrier therefor.

2,862,849

**Methods of Repelling Rodents Employing Chlorinated Phenol Derivatives.** Patent issued Dec. 2, 1958, to Blaine O. Pray, Wadsworth, and William E. Bissinger, Akron, Ohio, assignors to Columbia-Southern Chemical Corp. The method of protecting property normally infested by rodents from rodents by imparting rodent repellency thereto which comprises applying to said property a compound having the following formula:



wherein radical R is selected from the group consisting of hydrogen, hydroxy and alkoxy radicals containing from 2 to 4 carbon atoms, R' is selected from the group consisting of hydrogen and NO<sub>2</sub>—not more than one of R and R' being hydrogen.

2,862,879

**Process for Removing Nitrogen**

**from Petroleum Hydrocarbons with an Ester of a Metaboric Acid.** Patent issued Dec. 2, 1958, to Fred J. Dykstra, Detroit, Mich., assignor to Ethyl Corp., New York. A process which comprises reacting a nitrogen-containing heavy hydrocarbon oil having a gravity heavier than about 32° API with an ester of a metaboric acid, whereby a precipitate is formed in said hydrocarbon; and separating said precipitate and said hydrocarbon.

### Industry Trade Marks

The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of \$25 must accompany each notice of opposition.

**Green Stuff**, in capital letters, for lawn colorant. Filed Oct. 28, 1957, by the Krieger Color & Chemical Co., Inc., Los Angeles. First use Oct. 1, 1957.

**Agrem**, in capital letters, for agricultural emulsifiers, chemical wetting agents and suspending agents. Filed March 25, 1958, by Theodore Riedeburg, d.b.a. Theodore Riedeburg Associates, New York. First use Jan. 6, 1958.

**Alodan**, in capital letters, for agents for the destruction of animals and plants and plant protection agents. Filed April 3, 1958, by Farbwerke Hoechst Aktiengesellschaft, vormals Meister Lucius & Bruning, Frankfurt am Main, Germany.

**Bandini**, in capital letters, for fertilizer. Filed Oct. 4, 1957, by the Bandini Fertilizer Co., Los Angeles. First use on or about July 19, 1927.

**Dav-Gro**, in outlined block letters with black shading, for soluble plant food. Filed Aug. 25, 1958, by W. R. Grace & Co., New York. First use March 5, 1957.

**Spurt**, in capital letters, for fertilizer. Filed Sept. 3, 1958, by International Minerals & Chemical Corp., Skokie, Ill. First use Aug. 18, 1958.

### Mississippi Insect Conference Plans Told

STATE COLLEGE, MISS. — The fifth annual Mississippi Insect Control Conference will be held at Mississippi State University Jan. 8-9, according to A. G. Bennett, extension entomologist.

Highlights of latest research on cotton, corn and livestock insects will be discussed by entomologists of the agricultural experiment station, U.S. Department of Agriculture and insecticide formulators.

The 1959 Mississippi cotton insect control recommendations will also be announced during the two-day meeting.

Among the entomological authorities taking part in the conference will be C. F. Rainwater, head, cotton insect section, USDA, Washington; Dr. Marvin Merkl, USDA entomologist at the Delta Branch Experiment Station, Stoneville; Jack Vernon, president, National Agricultural Chemicals Assn., New York; Dr. A. W. Lindquist, chief, insects affecting man and animals research division, USDA, Beltsville, Md.

Dr. Clay Lyle, dean and director, division of agriculture at Mississippi State University, will discuss the proposed national boll weevil research program.

Discussing the use of airplanes in the agricultural and farming industry will be Charles Parker, executive director, National Aviation Trade Assn., Washington, and Fred Shuman, assistant agricultural engineer at Mississippi State University.

Also included in the two-day conference will be the annual business meeting of the Mississippi Entomological Assn.

### INSECTICIDE CONFERENCE

EAST LANSING, MICH. — Michigan State University will hold an Insecticide-Fungicide Conference at Kellogg Center on the campus here, Jan. 27-28, it was announced.

## Books on Soils and Soil Management

### SOILS AND FERTILIZERS—Fourth Edition

Firman E. Bear

Covers in detail: soil chemicals, important soil elements such as nitrogen, phosphorus, calcium; yield prospects of crop plants, moisture control, soil management; mechanical operations; soil conservation; organic matter maintenance. New facts, accurate figures. 66 illustrations, 420 pages ..... \$6.00

### SOIL FERTILITY (1955)

C. E. Millar, Professor Emeritus of Soil Science, Michigan State College

A fundamental treatment of the principles of fertility in the soil, with major emphasis on the plant itself. Relevant aspects of soil chemistry, soil physics, soil microbiology and plant physiology from viewpoint of their influence on plant growth. Each major plant food element and the more important micro-nutrients fully treated with respect to supply in the soil, sources and amounts of additions, losses from the soil, functions in plant growth and plant symptoms of deficiency. Covers all sections, with considerable space to saline soils and soils of southern latitudes ..... \$6.75

### CHEMISTRY OF THE SOIL (1955)

Firman E. Bear

Presents a comprehensive picture of the chemical aspects of soils in relation to their development, present constitution and the uses to which they are put. Covers: chemical composition, soil colloids, organic matter relationships, oxidation-reduction phenomena, acid, alkaline and saline soils, plant nutrition, nutrient fixation, trace element chemistry, root and soil relationships. Scientists engaged in soil research will find useful data directly applicable to their investigations. Food chemists, manufacturers and those manufacturing liming materials, fertilizers, soil conditioners, surfactants, wetting agents, insecticides, fungicides and other agricultural chemicals will gain new ideas for future product research and development. 384 pages ..... \$8.75

### SOIL PHYSICS—Third Edition (1956)

Dr. L. D. Baver, Director Experiment Station, Hawaiian Sugar Planters Association

This represents a considerable revision of the earlier versions and incorporates many ideas communicated to the author by soil scientists all over the world. Two new chapters on the principles of soil irrigation and drainage, discussion on soil puddling, effect of chemical soil conditions on soil structure, and recent contributions of the diffusion process in soil aeration, and information on hydraulic conductivity, soil moisture stress and plant growth, the importance of compaction on soil tillage, and wind erosion processes. 489 pages ..... \$7.75

### SOILS AND SOIL MANAGEMENT

A. F. Gustafson

A complete study of soils: physical properties, soil, organic matter, organic matter relation of water, control of water, tillage, erosion, acidity and its control by liming, management of alkali soils, nitrogen and its importance to the farmer, production, conservation and utilization of farm manures, production and utilization of green manure crops; fertilizer materials and their effects on soils; crop rotations; fertilization and long-term maintenance of productivity of mineral soils. Published 1941. 424 pages, illustrated ..... \$6.50

### SOIL SCIENCE SIMPLIFIED

Helmut Kohnke

A concise textbook dealing with basic concepts of soils. Much useful information for students in agriculture, farmers, fertilizer salesmen, etc. 68 pages, paper bound ..... \$1.00

### IRRIGATED SOILS: Their Fertility and Management—New 1954—Second Edition

D. W. Thorne and H. B. Peterson, Department of Agronomy, Utah State Agricultural College. Dr. Thorne is also Chief of Soils and Fertilizer Research Branch, Tennessee Valley Authority

An outstanding text dealing with the problems of irrigated regions. In addition to the chapters dealing with irrigation, the salt problem, reclamation of saline and alkali soils, there are chapters on maintaining organic matter in soil, minerals and plant growth, fertilizer elements and fertilizer materials, using fertilizers, soil management for general field crops, for fruit, vegetable and specialty crops... \$7.00

### THE RESPONSE OF CROPS AND SOILS TO FERTILIZERS AND MANURES (1954)

W. B. Andrews

A new book, with special reference to Anhydrous Ammonia and other sources of nitrogen in liquid form. Deals also with legumes as a source of soil nitrogen, and the uncertainty of green manures; the response of soil to phosphorus, potash and soda; the effect of fertilizers on yield and feeding value of hay and pasture crops. 468 pages, 19 chapters, 89 illustrations ..... \$6.00

### CHEMICALS, HUMUS AND THE SOIL

Donald P. Hopkins

The theme of the book is the necessity of chemical fertilizers to maintain the fertility of the soil. It has concise information on which soil conditions and which chemical fertilizers are most suited for special crops and vegetables. Space is devoted to cereal crops, barley, wheat, oats and rye; to roots and tubers, sugar beets, potatoes, carrots, parsnips and turnips; to vegetable crops, beans, alfalfa, lupines; to grasses and clovers; to onions, flax, kale, cabbage, lettuce, tomatoes, celery, cauliflower and fruits. It clarifies the relationship of manures, compost and chemicals as fertilizers and points out how chemicals should be used to obtain the best results. Its philosophical soundness and logic should do much to avert the confusion of thought introduced by the advocates of compost and manure as against the use of chemical fertilizers..... \$8.50

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## Despite Large Nutrient Reserves, Kansas Soil Response to Fertilizer Called 'Good'

MANHATTAN, KANSAS—Record breaking yields of Kansas crops in 1958 were due to adequate rainfall combined with great reserves of available nutrients in many fields as the result of more or less continuous drouth since 1952.

Despite this, there generally was good response to fertilizers, and particularly nitrogen fertilizers, Kansas State College researchers reported at the 11th annual Fertilizer Conference sponsored by the K-State agronomy department.

The researchers noted that there was adequate rainfall from the beginning of the crop period in the fall of 1957 until the end of the growing season in 1958, with about one-third more rainfall than normal in many locations. The reserves of available nutrients were especially apparent for fields which were idle in 1957. The result was record average yields for Kansas of 28 bu. an acre for wheat, 41 bu. an acre for corn, 37 bu. an acre for sorghum, and near all time records for hay.

The most spectacular increases from nitrogen came in irrigated corn plots in North Central Kansas. For instance, at the Hobson farm in Republic County, an application of 200 lb. of nitrogen and 40 lb. of phosphate increased yields from 58.5 bu. to 137 bu. an acre. In one of the

most impressive dryland tests, yields at the agronomy farm at Manhattan were increased from 99.3 bu. to 118 bu. with an application of 160 lb. of nitrogen.

Top dressing wheat with nitrogen in March gave responses of 12 to 21 bu. at three locations, but results were not as good at other locations, primarily because the additional nitrogen resulted in increased lodging.

At the Belleville irrigated plot there were small decreases for all nitrogen applications.

As in previous work at Kansas State College, there did not appear to be much difference in the type of nitrogen used.

And on wheat, there was no indication that solubility was a factor in determining response to phosphate.

### William B. Toulouse Named Monsanto's Advertising Manager

ST. LOUIS—William B. Toulouse of St. Louis will become Monsanto Chemical Co.'s corporate advertising manager effective Dec. 15, announced William R. Farrell, director of the advertising department.

At the same time, James E. Crawford, Jr., director of marketing for the company's inorganic chemicals division, announced that Charles L. Grisham, now assistant advertising manager for the company's organic chemicals division, will succeed Mr. Toulouse as inorganic chemicals division advertising manager.

Mr. Toulouse will succeed H. C. Holmes who has resigned. He joined Monsanto's organic chemicals division advertising department in 1952 after attending Tennessee Polytechnic Institute and Washington University. He served as assistant advertising manager for that division before becoming manager for the inorganic chemicals division's advertising department in December, 1954.

Mr. Grisham, a native of St. Louis, received an A.B. degree from Antioch College in 1948 and joined Monsanto's plastics division advertising department at Springfield, Mass., in 1951. He became assistant advertising manager for the organic chemicals division in 1955.



**25-YEAR MEN**—Four quarter-century employees of the Smith-Douglass Co. were guests of honor in Norfolk, Va., when Ralph B. Douglass, right, chairman of the board, presented each a 25-year engraved gold watch. Left to right are, A. Y. McMurray, Lincolnton, N.C., local representative; F. H. Ewell, manager of the Smith-Douglass sales office in Statesville, N.C.; John C. Mapp, manager of the Growers Seed and Fertilizer Co., Exmore, Va.; and Julius F. Timberlake, Louisburg, N.C., local representative.

### California Changes Nursery Service Status

SACRAMENTO, CAL.—The California Department of Agriculture has separated nursery service from the bureau of plant quarantine and re-established it as a bureau in the division of plant industry. This reorganization will provide more effective administration of programs affecting the nursery and ornamental plant industry.

Wray F. Hiltabrand, supervisor of nursery service in the bureau of plant quarantine for seven years, has been appointed chief of the Bureau of Nursery Service. Stanley M. Mather, assistant supervisor, was named assistant chief of the bureau.

The bureau is a self-supporting function with funds derived from licenses issued to sell nursery stock and fees from the registration and certification programs it conducts. Certain kinds of nursery stock grown under strict requirements to protect against disease and other pest infestation may be registered or certified.

The inspection of nurseries by county agricultural commissioners for plant pests, quality and proper labeling is coordinated by the bureau to assure uniformity throughout the state.

In the fiscal year ended June 30, 1958, the number of state licenses to

sell nursery stock reached a new high of 7,181. The wholesale value of eight selected types of nursery stock produced and sold in California in 1957 was reported to be \$20,815,000 by the U.S. Department of Agriculture's crop reporting board.

### September Super Output

WASHINGTON—U. S. production of superphosphate and other phosphatic fertilizers during December totaled 168,377 short tons, compared with 191,975 short tons in September, 1957, the Bureau of the Census has reported. September shipments amounted to 145,882 short tons, compared with 121,752 short tons in September a year earlier.

Stocks on hand at the end of last September totaled 333,193 short tons, a decrease from 346,814 a year earlier. September production included 92,183 short tons of normal and enriched, 53,644 short tons of concentrated, 12,990 short tons of ammonium phosphates and 9,560 short tons of other phosphatic fertilizers, including wet-base goods.

### Pasture Demonstrations Planned in 59 Counties in Georgia

ATLANTA, GA.—Mass demonstrations using 4-1-2 fertilizer ratios on permanent pastures are included in 1959 plans of the Agricultural Extension Service, University of Georgia College of Agriculture, J. R. Johnson, agronomist-project leader, has announced.

A total of 120 demonstrations will be located in the 59 Georgia counties cooperating with the Georgia Plant Food Educational Society in pasture and feed production programs to encourage grassland farming, Mr. Johnson said.

Members of the fertilizer industry will cooperate with local county agents and extension agronomists in establishing these demonstrations on grazing system farms. The demonstration plots will be 100 ft. long and 15 ft. wide. Mr. Johnson said that fertilizer at the rate of 240 lb. of nitrogen, 60 lb. of phosphate, and 120 lb. of potash will be applied.

Check plots will be maintained alongside the fertilized plots so that the farmer and his neighbors can see the difference that adequate fertilizer will make, Mr. Johnson said.

The demonstrations will be located on Coastal Bermuda sods where possible. In extreme north Georgia, orchard grass or tall fescue sods will be used.

Mr. Johnson said that the statewide goal of increasing the present carrying capacity of pasture of .8 cow per acre to 1.5 cows per acre can be achieved only by the wise use of fertilizer. Experiment stations have demonstrated that the 4-1-2 ratio of four parts nitrogen to one part phosphate to two parts potash is the best ratio, he said.

### SULFUR REPORT

WASHINGTON—The domestic sulfur industry produced 335,823 long tons of native sulfur and 51,709 tons of recovered sulfur during September, reported the Bureau of Mines, U.S. Department of the Interior. Producers' stocks of native sulfur decreased slightly from the previous month, and at the end of September, totaled 4,634,353 tons.

### PLANT MANAGERS

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## Research in the News

If those field-seeded tomato plants seem slow to get started, or if their leaves begin to go purple when they should be a healthy green, the trouble may be a shortage of phosphorus.

That's one of the conclusions of University of California scientists testing the reaction of field-seeded canning tomatoes to nitrogen, phosphorus and potassium on plots in San Joaquin and Yolo counties.

Their conclusions, in part:

1. Phosphates may be the cure for purple leaves and slow plant growth.
2. Fertilization with a mixture of nitrogen and phosphorus placed from two to four inches under the seeds at planting time should produce a better yield.

They recommend beneath-the-seed treatment with 10-20 lb. per acre of nitrogen and 25 lb. of phosphate (phosphorus pentoxide) at planting time, with an additional side fertilization of 60 lb. of nitrogen in ammoniacal form shortly after thinning.

They reported that the influence of phosphorus on plant growth occurs "early in the growth cycle" and that careful placement of the fertilizer is "essential for yield response."

They warned that there were "inherent dangers" in close placement of fertilizers; under certain conditions this might allow soluble salts to enter the seed and interfere with germination.

However, they said, proper irrigation and fertilizer placement should avoid such damage. Because of high toxicity, don't use anhydrous or aqua ammonia in the close placement practice, the scientists said.

The end of whorled milkweed, one of the worst of livestock-poisoning plants in New Mexico, is in sight. Reason: Experiments at the Von Cain Ranch near Mountainair have shown that this costly menace to sheep and cattle can be wiped out by chemical weedkillers.

For 20 years until 1956, Mr. Cain had tried everything—grubbing, plowing, mowing—to get rid of the whorled milkweed that was poisoning many of his cattle annually. He even fenced in large areas infested by the plant, in an effort to reduce his losses. Fencing, of course, was costly both in materials and lost grazing land.

W. Montgomery Ellison, Torrance County extension agent, suggested that Mr. Cain try some of the newer chemical weedkillers—Amizol, Benzac, Kuron. With the help of the agricultural services department at New Mexico A&M College, Mr. Cain began a series of plot tests in 1956 to find the most effective chemical to control milkweed. He sprayed seven half-acre plots with each of three chemicals in varying amounts. To his surprise, all three did the trick!

Here are the amounts of chemicals

that Mr. Cain added to enough water to spray the ¼-acre plots:

2 lb. of Amizol  
or  
3 pints of Kuron  
or  
2 quarts of Benzac

Best time to spray is usually in August or whenever the whorled milkweed is in full bloom, Mr. Cain says. Follow-up treatment is only necessary when plants are missed in the first application. Use of Amizol or Benzac may permit a slight regrowth at the base of the plants the following spring, but the plants will die within a short time without further treatment.

"This control of whorled milkweed is one of the most outstanding advances in range management in New Mexico in recent years," says Mr. Ellison. "These chemicals have not harmed the grasses in any way. In fact, the grasses have taken over those areas which once supported mostly milkweed."

Two new chemicals will control up to 95% of the annual weeds in bean fields, according to Lyle W. Weldon and F. L. Timmons of the federal Agricultural Research Service at Wyoming University.

The chemicals—called CDEC and EPTC by scientists—are on the market in small amounts under the names vegadex and eptam.

Before recommending the herbicides for general use, the researchers want to see results of large-scale tests planned for next spring. They have tried the chemicals in bean plots on agricultural experiment substations since 1955.

University and U.S. Department of Agriculture scientists started the cooperative research to test the possibility of using chemicals to control weeds in beans.

They have tested more than 60 chemicals at Torrington, Powell, and Laramie during the past 4 years. They found that CDEC and EPTC controlled both annual grasses and broad-leaf weeds without injuring beans.

Experiments showed that about 6 lb. of CDEC—or 5 lb. of EPTC—per acre, applied immediately after planting beans, controlled 95% of the weeds. Thorough working of the chemicals into the top 1 in. of the soil is a must, Mr. Weldon says, to avoid loss by evaporation. He suggests using a finger weeder, a spike-tooth harrow or a rotary hoe.

Through a \$2,600 annual grant from the American Potash Institute, Oregon State College has started a search to learn why some western Oregon soils tend to "lock up" reserve supplies of potassium while other soils make this important element readily available for crop production.

The 3-year project, totaling \$7,800, was announced by OSC Agricultural Experiment Station soil scientists T. L. Jackson and M. E. Harward, who are supervising the research. Hugh Gardner, OSC soils department research assistant, will conduct the trials.

The project has two purposes, according to the OSC soil scientists:

- (1) To secure more "knowledge about the amount and rate of potassium that soil mineral matter releases in a form available to plants."
- (2) To determine "the kind of clay and silt minerals present in the soils

and the influence they have on the release of potassium by the soil."

"The ability of a soil to release potassium in a form available to plants is closely related to the growth and potassium content of crops grown on that soil," OSC scientists explain. "The largest reserve of potassium in most soils is found in the soil minerals, particularly in the clay and silt components of the soil," they say.

"But different kinds of clays and silts vary, not only in the total potassium they contain but also in the proportion of total potassium that is released to the growing plants.

"Also important is the rate at which the soil will release potassium to a crop," they contend.

Early Oregon State studies indicate some soils may test high in available potash but are slow to replace it after it is used up in plant production. The OSC scientists hope the forthcoming trials will help them improve their methods of measuring soil fertility and the amount of potash fertilizer needed.

They will leach soil samples with chemicals to measure potassium "release rate," and then check these laboratory findings against actual plant production on land where the soil samples were gathered.

The Soil Improvement Committee, California Fertilizer Assn., has been active recently in providing new equipment to the University of California to assist in its fertilizer research program. It also recently presented the Grand Award in its annual Fertilizer Essay Contest, according to information released recently.

In order to assist the University department of agronomy in its current work in cereal grain fertilizer trials in various areas of the state, the committee has made available to it the latest model four-wheel tractor, for use in fertilizer placement trials, in the same operation with planting of the seed. This work is under the personal direction of Dr. Duane S. Mikkelsen, associate agronomist in the University agricultural experiment station. He promises progress reports of interest to cereal grain growers.

The committee also recently purchased and donated to the University of California a new Servis Pasture Renovator, which permits simultaneous seeding and fertilization of pasture and rangeland. It is now in use in various northern California areas under the direction of Dr. William E. Martin, extension soils specialist, and Lester J. Berry, extension range management specialist, both of the University. These scientists hope that this new equipment will help to bring under control a costly weed pest known as Medusa Head, which has become established in northern California areas.

Howard H. Hawkins, association president; Sidney H. Bierly, general manager, and Malcolm F. Rice, agronomist, presented the committee's check in the amount of \$100 to Wayne Ahlers, vocational agriculture student at Yuba College, Marysville. They also presented to Mr. Ahlers' instructor Ernest Wettstein, on behalf of the college, the committee's perpetual trophy for display in the trophy case during the coming year.

Mr. Ahlers' essay on the subject "Use of Fertilizer on Pasture and Rangeland" was judged to be the best of about 25 submitted from junior colleges all over the state.

Mr. Bierly and Mr. Rice of the association presented two \$100 cash scholarships to students of the Kellogg-Voorhis campus of California State Polytechnic College. Recipients were Jerry Fullerton, a crops student, and John Haga, a soils student.

## Gloomicides

The only reason it's a man's world is that a woman can't wear it, drive it, or plug it into a wall socket.

★

A man sat down in a restaurant, unwrapped a package of sandwiches, and poured a glass of water from the carafe.

The manager was about to remonstrate with him. "Who are you?" asked the man.

"I am the manager," came the reply.

"Just the man I want to see. Why isn't the orchestra playing?"

★

The good old days were when inflation was just something you did to a balloon.

★

A wealthy Easterner moved to Wyoming, where he bought a large ranch. He gave an enormous house warming at which only the finest foods and refreshments were served. It was an elegant affair. Afterwards, a cowhand was telling some friends about it. "We ate fer more'n 2 hours," he said, "an' the only thing I recognized was an olive!"

★

Husband-hunting is probably the only sport in which the animal that gets caught has to buy a license.

★

In the English town of Derby the workers in a factory wanted to give a party in the office area in honor of an 80-year-old cleaning woman. "Heavens! Not that," she begged. "I know those things! That would mean that I'd have to clean up after it the next morning!"

★

"You think so much of your old golf game that you don't even remember when we were married," complained the wife.

"Of course I do honey," the husband reassured her. "That was the day I sank that 40-foot putt."

★

A woman's hat tells you something about her, including whether her husband was along when she bought it.

★

A doctor was warning his patient that he should have regular habits. A hurt look in his eye, the man protested: "But I do, I do!"

"Well," asked the doctor, "how come I saw you with a well-stacked blonde at four this morning?"

"Oh, that," replied the patient. "That's one of my regular habits!"

★

A Texan had a small farm with just a few sheep. One day his wife while dyeing some bedspreads had a little lamb fall into the bucket of dye. A passing motorist saw the lamb with the blue fleece and bought it for \$50. So the Texan figured he had a good thing going and colored more lambs which brought big profits.

"Pretty soon," he recalled, "I was coloring them pink, blue, yellow, green, lavender and you know—now I'm the biggest lamb dyer in Texas."

★

A woman reported the disappearance of her husband to the police. "Is there any message you wish to give him if we find him?" they asked.

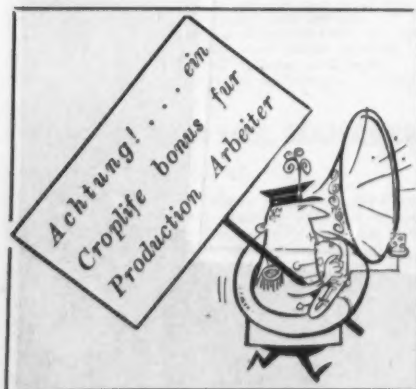
"Yes," she replied eagerly, "tell him mother didn't come after all."

★

A woman walked into a furrier's and said, "I would like a drop-dead coat."

"What on earth is a drop-dead coat?" asked the furrier.

"A coat so that when my jealous neighbor sees it, she should drop dead."





## MISSOURI MEETING

(Continued from page 1)

land is classed as permanent pastures, Mr. Christy told the representatives of the fertilizer industry attending the two-day meeting. Currently, most of this permanent pasture is capable of producing no more than 100 lb. beef or its equivalent per acre.

**This permanent pasture is land that offers a good opportunity to produce more farm income, he said. The surface has barely been scratched in permanent pasture renovation as less than 1½ million Missouri acres have been reworked since 1950.**

The two-day short course was sponsored by the Soil Fertility and Plant Nutrition Council of Missouri working in cooperation with the University of Missouri's soils department and extension service.

During a council business meeting held as a part of the short course program, Austin A. Mount, sales supervisor of the Davison Chemical Co., Joplin, was elected president of the organization. He succeeded Bill Mainord, representing the Farm Bureau Service Co. at New Florence.

Robert Weis, manager of the Virginia-Carolina Chemical Corp. in St. Louis, was named vice president, and Frank Hoffman, co-owner of Hoffman and Reed Farm Supply at Trenton, was elected secretary-treasurer.

The three officers and six other council members make up the group's board of directors. Other directors include Tate Sweeney, field representative of Darling & Co., Marshall; Jake Jacob, manager of the Missouri Plant Food Co., Sikeston; Dick Balser, agronomist for the Spencer Chemical Co., Kansas City; Bill Ballew, manager of the Missouri Farmers Assn.'s plant foods division, Columbia; Tom Rogers, sales representative of Monsanto Chemical Co., Columbia; and Curtis Rocklage, co-owner of Lafayette Elevator, Lexington.

**In his report to the group, Mr. Mainord, retiring president, reviewed some of the council's programs carried out during the past year. These included the following:**

1. The council sponsored, through the facilities of the Missouri Press Assn., a contest for Missouri newspapers. Cash awards of \$500 were given to six Missouri daily and weekly newspapers doing an outstanding job of reporting soil improvement programs as carried out by farmers.

2. The group helped the Missouri extension service start a 4-H soil improvement project that is unique in club work. As a sponsoring group, the council made awards available to the top project members in the state and presented bolo ties to all 4-H'ers who successfully completed the soil improvement project.

3. During the past 12 months, the council cooperated with John Falloon, University extension soils specialist, in presenting a series of three soil fertility workshops for Missouri dealers. The workshops consisted of four meetings of two hours each spread over a month's time. Altogether, 402 Missouri fertilizer dealers attended some portion of the workshops.

4. The council also continued to make marking signs available to dealers, county agents or other persons carrying out fertilizer demonstrations on crops or pastures.

5. Council members helped the College of Agriculture and extension service prepare and carry out soil fertility field day programs over the state.

Mr. Mainord said that the soil fertility workshops for dealers were so well received that the program will be continued. Currently, four more workshops have been scheduled during coming weeks.

In a new activity, Mr. Mainord

said the Soil Fertility and Plant Nutrition Council is joining with the Missouri extension service and the Gulf, Mobile and Ohio Railroad in sponsoring a soil improvement recognition program for farmers in 10 mid-Missouri counties.

Purpose of the program is to encourage continuous soil improvement programs for entire farms, the retiring president said.

Most of the other speakers appearing on the two-day program were University soils specialists. Exceptions were Elmer R. Kiehl, chairman of the University's agricultural economics department; Z. H. Beers, of the National Plant Food Institute, Chicago; and Orville Buerge, fertilizer dealer from Harrisonville.

**In his appearance on the program, Mr. Kiehl said increased fertilizer use has probably contributed more to the nation's greater agricultural production of the past 10 to 15 years than any other single element.**

Mr. Beers reported on a national survey the National Plant Food Institute sponsored which was concerned with farmers' attitudes toward fertilizers.

He told the Missouri group that the answers of the 2,000 farmers interviewed in the study indicated that there were three main barriers to the use of fertilizer. These were:

1. Lack of knowledge about the value of fertilizer on the part of the farmer.
2. A lack of money for fertilizer purchases.
3. A fear that fertilizers would have adverse effects on their crops.

**As a sidelight, Mr. Beers said that answers to the interviews showed that 47% of the 2,000 farmers contacted had had soil tests made in recent years. Results of these soil tests were often used as guides in determining what and how much fertilizer to apply.**

E. R. Graham, University professor of soils, was speaker at the short course's dinner meeting. The soils specialist recently returned to the College of Agriculture faculty following a year's leave of absence which he spent at Atomic Energy Commission headquarters at Oak Ridge, Tenn., and Los Alamos, N.M.

During his leave, Mr. Graham carried on research work concerned with the effect of radioactive materials on plants and soils. His talk to the group was a report on some of the work that he did at Los Alamos.

Other members of the University's soils department who appeared on the program included W. A. Albrecht, chairman, George E. Smith, Ted R. Fisher, Melton Brown, Jim Roth, George Wagner, Theo Dean, Frank Stanley and C. M. Woodruff.

In addition to Mr. Christy, other extension soils specialists to make an appearance on the program were John Falloon and Alva L. Preston.

## Wet Texas Produces Bumper Crop, Increase In Plant Diseases

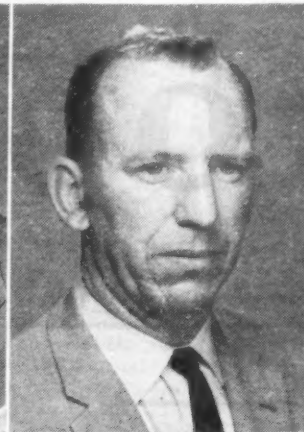
**ABILENE, TEXAS**—Texas' wettest year since the early '40's produced a bumper crop, but the excess moisture has greatly increased plant diseases also.

Autumn-planted small grain came up to a fast start, but rust is prevalent on many fields, particularly in central west Texas where the rains have been consistent and heavy.

Insects are also thriving but are expected to ease up when colder weather arrives. White grubs have damaged several thousand acres in Foard County, while green bugs are damaging wheat in Motley and adjoining counties.



Hubert D. Crain



Howard W. Sheldon



George Klepser

## Dow Announces Sales Personnel Changes

**MIDLAND, MICH.**—Two new sales office supervisor appointments have been announced in a shift of agricultural chemical sales personnel by the Dow Chemical Co.

Hubert D. Crain will become the first supervisor of agricultural chemi-

cal sales in the Minneapolis office. He will be replaced in his similar post in the St. Louis office by Howard W. Sheldon.

Mr. Crain has been with Dow since 1926 and in agricultural chemical sales since 1929. He has been supervisor of agricultural chemical sales in St. Louis since 1946.

Mr. Sheldon has been with Dow since 1954. For the past three years he has headed the merchandising section for agricultural chemicals in Dow's home office in Midland.

Other transfers announced by Dow include J. L. Maxwell, moving from product manager for space and grain fumigants to area supervisor for farm-sale products. He will continue to be officed at company headquarters. George Klepser will replace Mr. Maxwell as product manager for space and grain fumigants. He has acted as assistant for the past two years.

James H. Gowell will join the Chicago sales office as field salesman covering eastern Iowa and northern Illinois. For the past two years he has represented Dow in the state of Michigan. John Tattershall will concentrate on marketing weed and brush control products to industrial users in Ohio, Kentucky, northern Indiana and a portion of West Virginia. He will continue to operate from the Cincinnati sales office where he has been a general agricultural products salesman since 1956. Charles L. Beckwith will take over farm products sales in Ohio, Kentucky and the western section of West Virginia. Formerly he handled all agricultural products for Ohio.

Gerald L. Mitchell will cover western New York, western Pennsylvania and northern West Virginia on all of Dow's agricultural products. Previously Mr. Mitchell was inside salesman in the Buffalo office.

All of the moves will be completed by Jan. 1, according to W. W. Allen, sales manager for agricultural chemicals.

## NATIONAL POTASH

(Continued from page 1)

stock involved at that time will be less than 10%.

The agreement contemplates additional investments on the part of Central Farmers, National indicated, but the amount of stock to be purchased by the Farmers' group in future years will "never be sufficient to give them independent control of National Potash Co.," the spokesman indicated.

Central Farmers is an inter-regional agricultural cooperative which supplies basic fertilizer materials to its members in the Midwest and Pacific Northwest. The members of Central Farmers are regional agricultural cooperatives which manufacture and distribute mixed fertilizers and materials to farmers through a system of local cooperatives.

Central Farmers also supplies nitrogen products to its members through part ownership of two nitrogen plants. It will also produce phosphate rock and triple superphosphate at its mine and plant at Georgetown, Idaho, scheduled to start production in April of 1959.

National, the newest entrant in the potash industry in this country, began operations in 1957. It has mining and processing facilities near Carlsbad, N.M., and undeveloped additional reserves in New Mexico and Canada. The arrangement with Central Farmers may enable National to develop some of these additional reserves.



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# Croplife

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Western states.

## INFORMATION AVAILABLE . . .

### New Booklet Tells How Chemicals Protect Agricultural Crops, Property and Health

THE BOOKLET, "Open Door to Plenty" recently issued by the National Agricultural Chemicals Assn., marks a current high in the trade's efforts to bring before the public a truthful portrayal of the pesticide industry. It would make very enlightening reading for some people we know about who have apparently deluded themselves into thinking of insecticides as the cause of most human ills.

Such persons, if they should be moved to look at the matter objectively, might be surprised at some of the things this booklet tells. The center spread, for instance, presents a graphic picture of the stages involved in the development of a new pesticide, all the way from original synthesis to marketing.

It might even be a surprise to some perusers of these pages to find that the firms making insecticides actually DO have the public interest in mind in testing new materials for toxicity and in arriving at precautions to be observed in handling and applying the product when it reaches the market!

Tests for chronic toxicity, pharmacodynamic and biochemical studies, and steps to determine the margin of safety for residues are all indicated in the diagram. It is a convincing presentation.

But that is far from all the book brings its readers. It answers basic questions such as "What are agricultural chemicals?" It takes the reader back through history to remind him that insects have always been an enemy to man, competing for food and space. An outline is given on the history of how agriculture developed in the U.S., making the insect pest an even more formidable foe. The concentration of crops makes it easier for bugs to invade larger areas, thus making them more difficult to control.

Principles of pest control are outlined in the NAC booklet, with the four most-used methods of preventing insect damage in crops being listed as planting resistant varieties; using modern cultural practices; employing biological agents, and using pesticidal chemicals.

The non-technical reader might also be surprised to note that insects are not the only ones coming within the category of "pests." Plant diseases, weeds and rodents are also thus classified, and their control is pointed out as being also necessary.

Rats are indeed a major pest when it is considered that their depredations cause economic damage estimated at from \$1 billion to \$2 billion a year. "The 170,000,000 rats in the country alone, eat as much as 10,000,000 people every year," the book reminds.

After continuing through a well-illustrated chapter on application methods, another on how chemicals bring higher yields and better quality crops and still another on the nutritious quality of the American food supply, the book covers the population increase, home gardening, indoor and outdoor living, and forests in relation to the insect threat.

Possibly the key chapter; the one that should be read most avidly by many of the foes of insecticides, is the one on pesticides and wildlife. It reminds that joint studies by the U.S. Department of Agriculture and the U.S. Fish and Wildlife Service have been under way since 1945, and that results of these studies have been put into action.

With this kind of knowledge as a background, the Fish and Wildlife Service recommends that insect infestations should be sprayed before they reach upper drainage areas; that such programs should be undertaken before infestations cover large acreages of forest land. Wherever practicable, spraying around the edge of lakes should be done with small planes and when wind velocity is low. Finally, it recommends that spraying should be carried out so as to avoid airplane turns over streams, or the use of streams as boundaries for spraying operations.

The NAC reminds again that insecticides are not the only pest control materials used in this area. Herbicides are used to create openings in densely wooded areas necessary to wildlife development, and to control undesirable vegetation in marshlands and elsewhere.

Other chemicals rid ponds of algae, weeds, leeches and parasite-carrying snails. This is done without harm to fish. "When properly used, pesticides become tools for improving wildlife, as well as tools for protecting valuable forest and farm resources," the book says.

If the reader still has doubts about the pesticide business and wonders if the industry is well enough regulated by laws, he should keep going in the book and he will find a well-filled chapter on "Laws Regulating Agricultural Chemicals." It recalls the original pesticide law of 1910, continues through the Federal Insecticide, Fungicide and Rodenticide Act of 1947, and describes the provisions of the Miller pesticide residue amendment to the Federal law. This amendment established means of setting tolerances for residues which may legally remain in or on a food crop when it enters interstate commerce.

Federal laws, the NAC book reminds, require scientific and tested proof of safety of agricultural chemicals before they can be sold for use in foods, and further places definite restrictions on their use in order to safeguard the public.

Laws and regulations in more than 40 states either duplicate the same federal requirements within the state, or establish similar requirements to protect the safety of consumers. State laws, as well, require labeling to warn users of any possible hazards in using the chemicals.

"In effect," the book says, "these laws require that manufacturers must prove agricultural chemicals are safe and that they can be used properly to benefit society before they can be sold."

An admonition to read the label; a glossary of terminology and a check list for the safe use of pesticide wind up this remarkable little volume.

Our hope is that formulators and dealers of pesticides will make use of this straightforward volume for the further education of their customers. It is the dissemination of this type of information that will go a long way toward quieting the raucous voices clamoring against the use of pesticides in programs both large and small.

The NAC Assn. has taken a giant step in making this booklet available to its members for further distribution.



Croplife's Home Office

## Croplife



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CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is \$5 for one year (\$8 a year outside the U.S.). Single copy price, 25¢.

LAWRENCE A. LONG

Editor

DONALD NETH

Managing Editor

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# MEETING MEMOS

Jan. 8-9—Fifth Annual Mississippi Insect Control Conference, Mississippi State University, State College, Miss.

Jan. 13—Pesticide meeting to discuss current recommendations, Rm. 232, Agricultural Experiment Station Building, University of Kentucky, Lexington.

Jan. 13-15—Ninth Annual Fertilizer Dealers Training Conference, Pershing Municipal Auditorium, Lincoln, Neb.

Jan. 27-28 — Insecticide - Fungicide Conference, Kellogg Center, Michigan State University, East Lansing, Mich.

Feb. 13—National Safety Council, executive committee of the fertilizer section, winter meeting, Heart of Atlanta Motel, Atlanta, Ga.

Meeting Memos listed above are being listed in this department this week for the first time.

Dec. 17-18—Beltwide Cotton Production Conference, Rice Hotel, Houston, Texas, sponsored by the National Cotton Council.

1959

Jan. 7-8—Fertilizer Short Course, Iowa State College, Ames.

Jan. 7-8—Fifth Annual Insect Control Conference, Mississippi State University, State College, Miss.

Jan. 7-9—Thirteenth Annual Northeastern Weed Control Conference, Hotel New Yorker, New York.

Jan. 12-13—Ohio Pesticide Institute, annual winter meeting, Neil House, Columbus, Ohio. J. D. Wilson, Secretary, Agricultural Experiment Station, Wooster, Ohio.

Jan. 13-14—Georgia Plant Food Educational Society, Annual Meeting, Georgia Center for Continuing Education, Athens, Ga., J. Fielding Reed, 710 Mortgage Guarantee Bldg., Atlanta, secretary-treasurer.

Jan. 20-22—California Weed Conference, Miramar Hotel, Santa Barbara, Cal.

Jan. 21-22—Northwest Agricultural Chemicals Industry Conference, Benson Hotel, Portland, Ore.; George Kitzmiller, Pacific Cooperatives, Portland, conference chairman.

Jan. 21-23—Western Cooperative Spray Project, Benson and Imperial Hotels, Portland, Ore.

Jan. 22-24 — Agricultural Aircraft Assn., Senator Hotel, Sacramento, Cal.; Wanda Branstetter, Chandler Field, Fresno, Cal., Executive Secretary.

Jan. 27-28—Nematology Workshop, Portland, Ore., sponsored by Shell Chemical Corp.

Jan. 27-28—Soil Science Society of North Carolina, Williams Hall, North Carolina State College, Raleigh.

Jan. 28-29 — Illinois Custom Spray Operators' Training School, 11th annual meeting, University of Illinois, Urbana.

Jan. 29—South Dakota Fertilizer Dealer Short Course, South Dakota State College, Brookings, S.D.

Jan. 29-30—Colorado Agricultural Chemicals Assn., Cosmopolitan Hotel, Denver. D. E. Garrison, Box 623, Greeley, Colo., secretary.

Feb. 10-12 — Agricultural Chemicals Conference, sixth annual meeting, Texas Technological College, Lubbock, Texas.

Feb. 12-13—Midwestern Agronomists-Fertilizer Industry Representatives, 11th annual meeting, Edgewater Beach Hotel, Chicago, Ill., sponsored by National Plant Food Institute.

Feb. 24-25—Alabama Pest Control Conference, Alabama Polytechnic Institute, W. G. Eden, Secretary-Treasurer, Alabama Association for Control of Economic Pests, Alabama Polytechnic Institute, Auburn, Ala.

March 17—Western Agricultural Chemicals Assn. spring meeting, Hotel Miramar, Santa Barbara, Cal. C. O. Barnard, executive secretary.

June 9-10—Seventeenth Annual Convention of the Association of Southern Feed and Fertilizer Control Officials, Velda Rose Motel, Hot Springs, Ark.; Bruce Poundstone, University of Kentucky, Lexington, Ky., secretary-treasurer.

July 7-9 — Pacific Northwest Plant Food Assn., 10th Annual Regional Fertilizer Conference, Tacoma, Wash.

Nov. 4-6—Fertilizer Industry Round Table, Mayflower Hotel, Washington, D.C. Dr. Vincent Sauchelli, National Plant Food Institute, chairman.

## Phillips Operating Facilities Of West Coast Chemical

BARTLESVILLE, OKLA. — Phillips Petroleum Co. has confirmed that it is now operating the ammonia distribution facilities in the states of Washington, Oregon and Idaho previously operated by West Coast Chemical Enterprises, Inc. The company said that some of the plants had already been sold to independent operators and that the remaining plants will be sold or leased to operators in the area.

## 12 Winter Meetings Planned for Virginia

BLACKSBURG, VA. — Virginia Polytechnic Institute has scheduled 12 winter fertilizer meetings and agronomy schools for Virginia, announced W. W. Lewis, extension agronomist.

Dates and places include:

Jan. 26, at Bowling Green for Caroline County.

Jan. 27, at Richmond for Henrico, Hanover and Chesterfield counties.

Jan. 28, at Franklin for Southampton, Nansemond, Surry, Isle of Wight, Greensville and Sussex counties.

Jan. 29, at Norfolk for Norfolk and Princess Anne counties.

Feb. 10, at Christiansburg for Montgomery, Floyd and Craig counties.

Feb. 23, at Brookneal for Campbell and Halifax counties.

Feb. 24, at Staunton for Augusta County.

Feb. 25, at Orange for Orange County.

Feb. 26, at Crewe for Nottoway, Lunenburg, Charlotte, Mecklenburg, Prince Edward, Amelia and Powhatan counties.

Feb. 27, at Buckingham, for Buckingham, Nelson, Fluvanna, Albemarle, Louisa, Amherst and Goochland counties.

March 2, at Wytheville (tentative).

March 3, at Lebanon (tentative).

## To MCA Position

WASHINGTON — James F. King has been named assistant to the president in charge of government relations for the Manufacturing Chemists' Assn., Inc., it was announced recently by Gen. John E. Hull, USA (Ret.), MCA president. Mr. King, who has held a number of advisory and administrative positions in the U.S. government, came to the MCA after serving as assistant to the director of the Office of Civil and De-

## Classified Ads

Classified advertisements accepted until Tuesday each week for the issue of the following Monday.

Rates: 15¢ per word; minimum charge \$2.25. Situations wanted, 10¢ a word; \$1.50 minimum. Count six words of signature, whether for direct reply or keyed, care this office. If advertisement is keyed, care of this office, 20¢ per insertion additional charged for forwarding replies. Commercial advertising not accepted in classified advertising department. Display advertising accepted for insertion at minimum rate of \$11 per column inch.

All Want Ads cash with order.

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## MACHINERY FOR SALE

FOR SALE — USED ½ TON STEADMAN Mixer. C. Roy Curtis & Son, Inc., Marion, N. Y.

FOR SALE — DISMANTLING A FERTILIZER plant near Nashville, Tenn. All machinery is for sale. Items include: 4'x14' Gyroset screen, two Steadman 20"x18" hammer mills, many conveyors, two St. Regis valve packers, gas dryer 25'x4', Universal 1020 crusher, 1½ ton mixer, plus many more. Plant open for inspection. Write Ad No. 4332, Croplife, Minneapolis 40, Minn.

## MISCELLANEOUS

KILL BRUSH at low cost with amazing R-H Brush Rhap. Will not injure grasses, grains, cattle, or other animals. See your dealer, or write Reaser-Hill Corporation, Box 36CL, Jacksonville, Ark.

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fense Mobilization.

He succeeds Claude E. Hobbs, MCA staff counsel, who resigned to accept a position in private industry.

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S M T W T F S	S M T W T F S	S M T W T F S	S M T W T F S
1 2 3 4 5 6	1 2 3	1 2 3 4 5 6 7	1 2 3 4 5 6 7
7 8 9 10 11 12 13	4 5 6 7 8 9 10	8 9 10 11 12 13 14	8 9 10 11 12 13 14
14 15 16 17 18 19 20	11 12 13 14 15 16 17	15 16 17 18 19 20 21	15 16 17 18 19 20 21
21 22 23 24 25 26 27	18 19 20 21 22 23 24	22 23 24 25 26 27 28	22 23 24 25 26 27 28
28 29 30 31	25 26 27 28 29 30 31		29 30 31
APRIL	MAY	JUNE	JULY
S M T W T F S	S M T W T F S	S M T W T F S	S M T W T F S
1 2 3 4	1 2	1 2 3 4 5 6	1 2 3 4
5 6 7 8 9 10 11	3 4 5 6 7 8 9	7 8 9 10 11 12 13	5 6 7 8 9 10 11
12 13 14 15 16 17 18	10 11 12 13 14 15 16	14 15 16 17 18 19 20	12 13 14 15 16 17 18
19 20 21 22 23 24 25	17 18 19 20 21 22 23	21 22 23 24 25 26 27	19 20 21 22 23 24 25
26 27 28 29 30	24 25 26 27 28 29 30	28 29 30	26 27 28 29 30 31
AUGUST	SEPTEMBER	OCTOBER	NOVEMBER
S M T W T F S	S M T W T F S	S M T W T F S	S M T W T F S
1	1 2 3 4 5	1 2 3	1 2 3 4 5 6 7
2 3 4 5 6 7 8	6 7 8 9 10 11 12	4 5 6 7 8 9 10	8 9 10 11 12 13 14
9 10 11 12 13 14 15	13 14 15 16 17 18 19	11 12 13 14 15 16 17	15 16 17 18 19 20 21
16 17 18 19 20 21 22	20 21 22 23 24 25 26	18 19 20 21 22 23 24	22 23 24 25 26 27 28
23 24 25 26 27 28 29	27 28 29 30	25 26 27 28 29 30 31	29 30
30 31			



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